ORDER NO. KMS0008517C3

# Service Manual

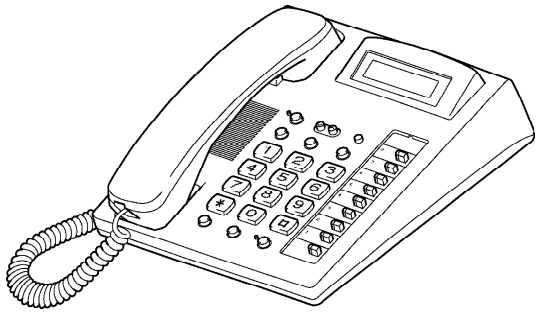
## DIGITAL PROPRIETARY TELEPHONE

## KX-T7565X / KX-T7565X-B

White Version

Black Version

(for Asia, Middle East Near, Latin America and Africa)



## SPECIFICATIONS

■ SPECIFICATIONS

| | |
|---|---|
| Station Loop Limit: | 40 ohms |
| Cabling Method: | 2 pair wire |
| Jacks: | PABX, Handset/Headset, Telephone |
| Display: | 16 digits (max.) |
| Dimensions: | $7\frac{7}{16}$" x $3\frac{3}{8}$" x $8\frac{3}{4}$" |
| | [189 (W) x 86 (H) x 222(D)mm] |
| Weight: | 1.48 ld. (670g) with handset |

● Design and specifications are subject to change without notice.

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**⚠ WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Panasonic

# 1. CAUTION

**Note:**

**When you mention the serial number, write down all 11 digits. / The serial number may be found**

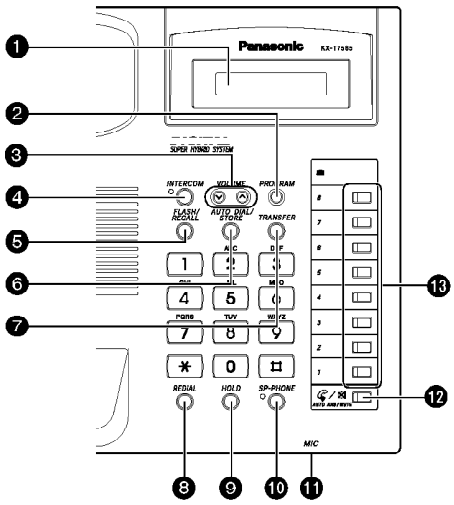
**the label affixed to the bottom of the unit.**

# 2. FOR SERVICE TECHNICIANS

**1. Note the following items when exchanging the LEDs (Ref. No. D100-107) of Main Board.**

**1) Do not reuse a LED which is removed from the P.C. Board. / 2) Use a soldering iron (less than 15 W) for exchanging LED. / 3) Do not heat the LED for more than 2 seconds. / 4) Do not move the LED after soldering.**

# 3. LOCATION OF CONTROLS




❶ **LCD (Liquid Crystal Display)**

❷ **PROGRAM:** Used to enter and exit the programming mode. (For station programming mode only. For system programming, please use another Digital Proprietary Telephone with display.)

❸ **VOLUME Control Button:** Used to adjust the volume.

❹ **INTERCOM:** Used to make or receive intercom calls.

❺ **FLASH/RECALL:** Used to disconnect the current call and make another call with holding the same outside line.

❻ **AUTO DIAL/STORE:** Used for speed dialling in the system or storing program changes.

❼ **TRANSFER:** Used to transfer a call to another party.

❽ **REDIAL (ordinarily):** Used to redial.
**PAUSE (in programming):** Used to insert a pause for One-touch dialling numbers.

❾ **HOLD:** Used to place a call on hold.

❿ **SP-PHONE:** Used for the handsfree operation.

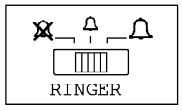
⓫ **Microphone:** Used for the handsfree conversation.

⓬ **AUTO ANS (Auto Answer):** Used to answer an intercom call automatically without touching telephone.
**MUTE:** Used to listen to the other party without them hearing you. You can mute the handset microphone or the Microphone.

⓭ **Flexible Outside (CO) Line Button:** Used to make or receive an outside call, or access a feature if the button is assigned as a One-touch dialling button.

### Adjusting the ringer volume

Adjust the **RINGER volume selector** lever (at the bottom of the unit) to the desired setting. (OFF, LOW, HIGH)




### Adjusting the display contrast

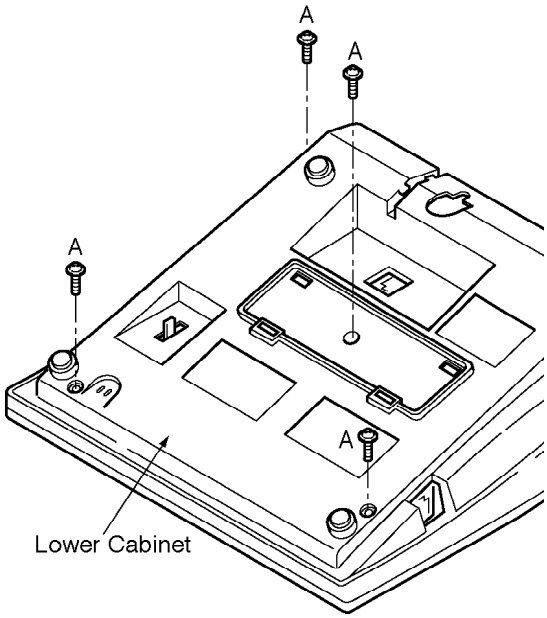
*While idle and on-hook, and not ringing*

Press **FLASH/RECALL** button first. Press **UP** (^) or **DOWN** (v) key within 2 seconds after releasing FLASH/RECALL button. (3 steps)

# 4. DISASSEMBLY INSTRUCTION

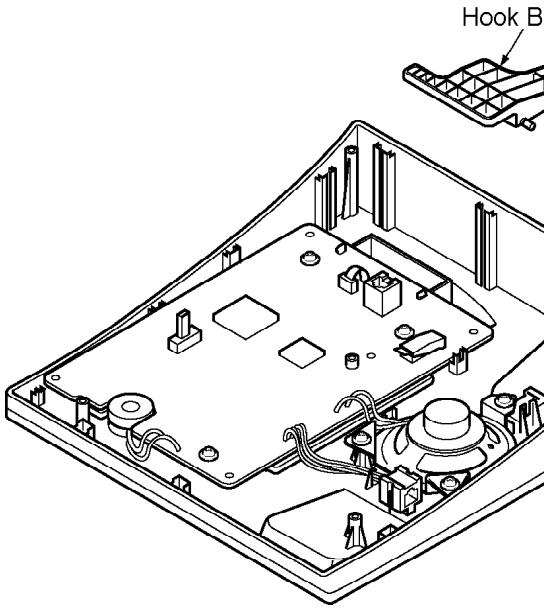
## 4.1. HOW TO REMOVE THE LOWER CABINET / (Procedure 1)

**(1) Remove the 5 screws A. / (2) Remove the lower cabinet.**



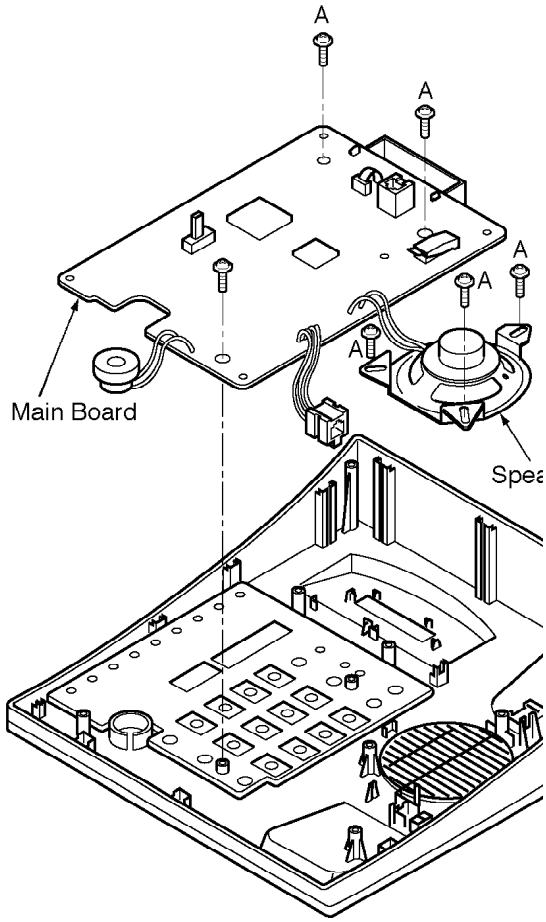

## 4.2. HOW TO REMOVE THE HOOK BUTTON / (Procedure 1 → 2)

**(1) Remove the hook button.**



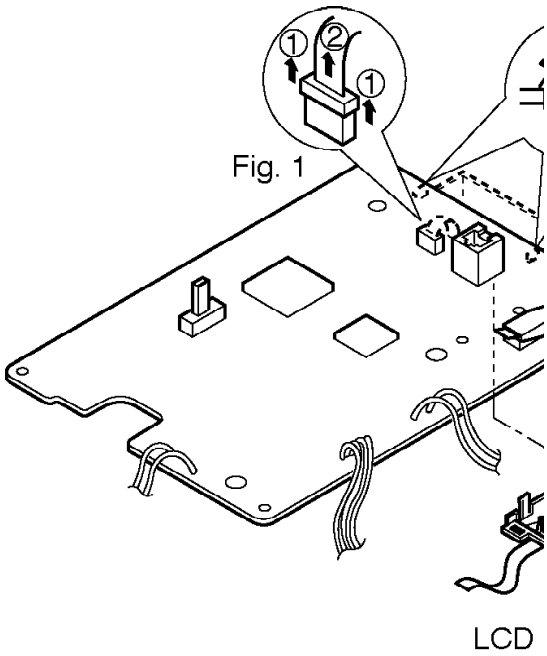

## 4.3. HOW TO REMOVE THE MAIN BOARDS / (Procedure 1 → 2 → 3)

**(1) Remove the 6 screws A. / (2) Remove the main board, speaker, H/S jack and mic.**



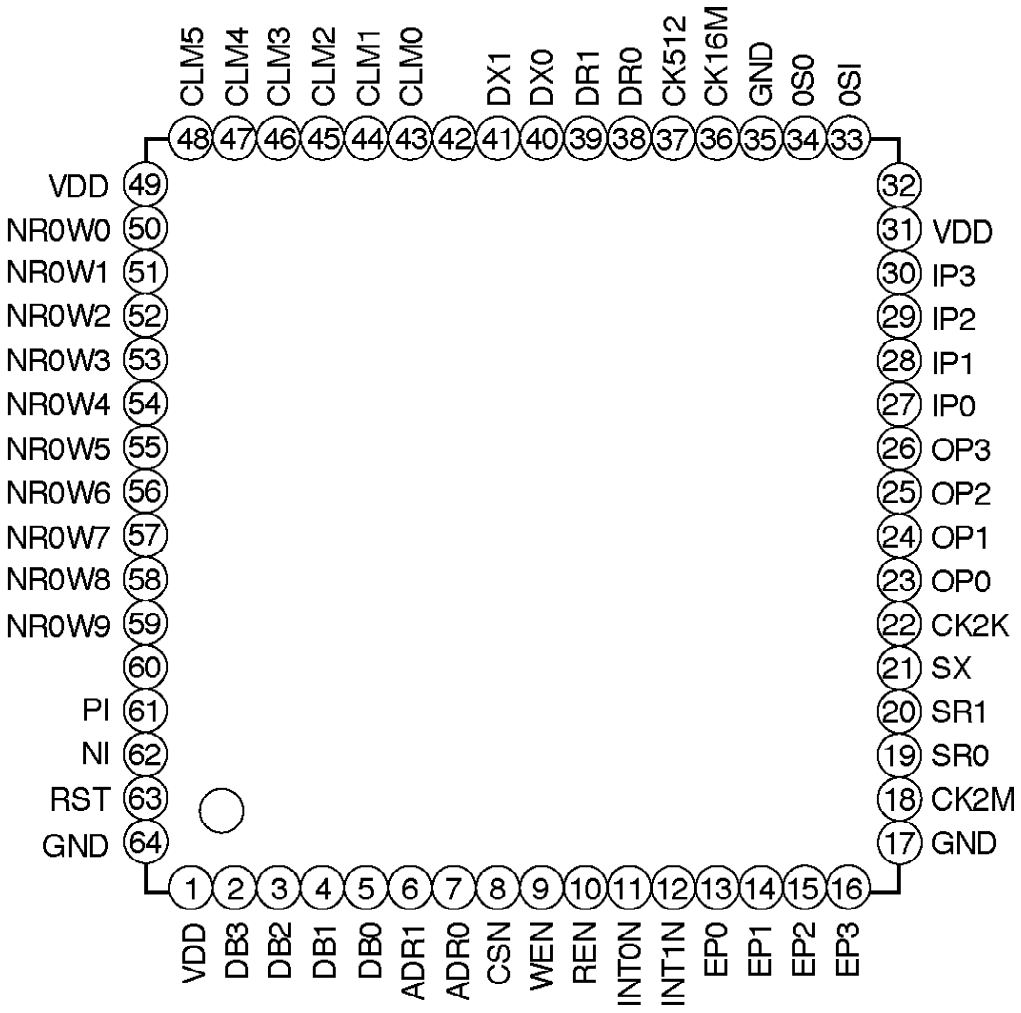

## 4.4. HOW TO REMOVE THE LCD BLOCK / (Procedure 1 → 2 → 3 → 4)

**(1) Pull out the flat cable. (See Fig. 1) / (2) Remove the LCD block. (See Fig.2) /**



# 5. IC DATA

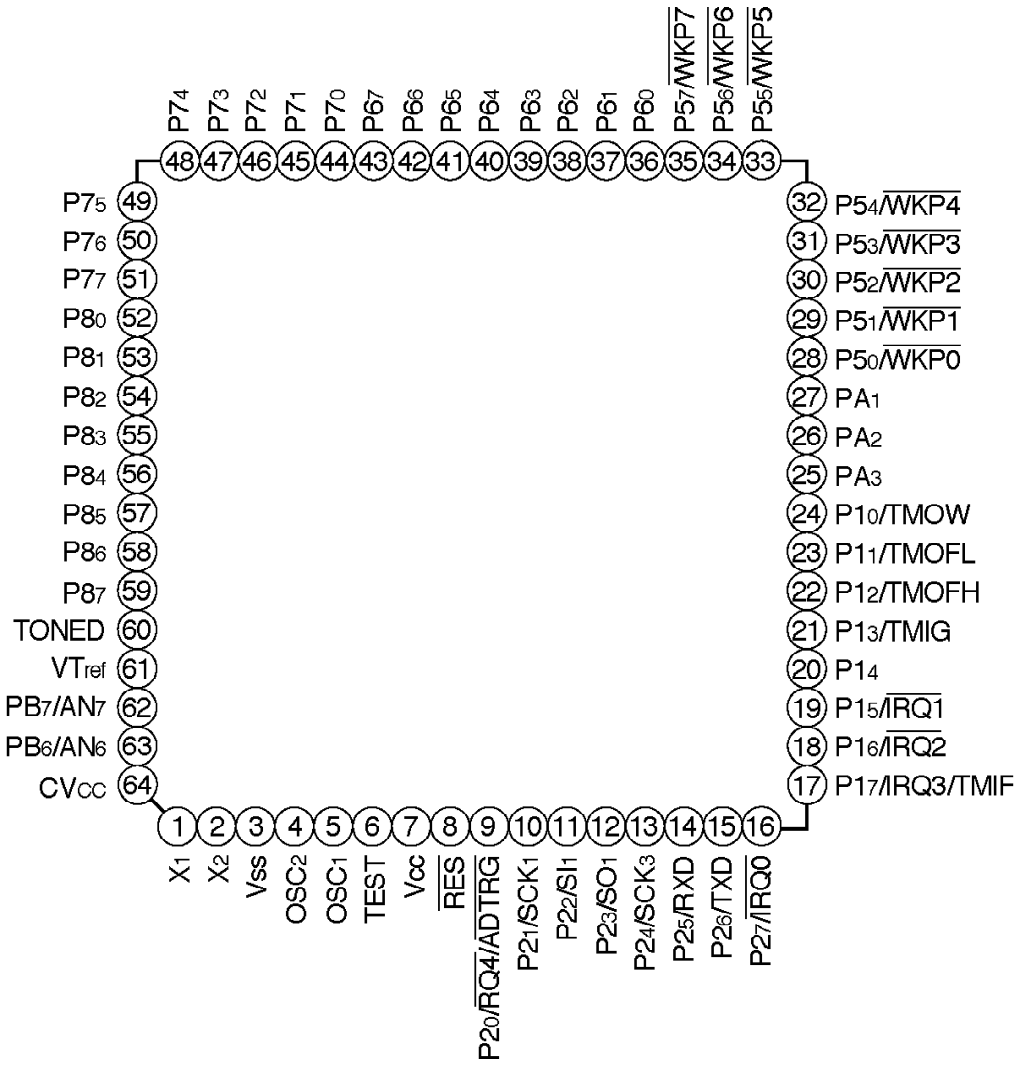
## 5.1. IC1



| Name | Pin | Dir. | Pull Up | Type | Io | Act. | Block | MHz | Description |
|---|---|---|---|---|---|---|---|---|---|
| DB3 | 2 | bidir | --- | TTL | 8.0mA | high | PT5B03 | 2 | Data Bus [3] |
| DB2 | 3 | bidir | --- | TTL | 8.0mA | high | PT5B03 | 2 | Data Bus [2] |
| DB1 | 4 | bidir | --- | TTL | 8.0mA | high | PT5B03 | 2 | Data Bus [1] |
| DB0 | 5 | bidir | --- | TTL | 8.0mA | high | PT5B03 | 2 | Data Bus [0] |
| ADR1 | 6 | input | 12-38k | TTL | --- | high | PT5D01U | 2 | Address Bus [1] |
| ADR0 | 7 | input | 12-38k | TTL | --- | high | PT5D01U | 2 | Address Bus [0] |
| CSN | 8 | input | --- | TTL | --- | low | PT5D01 | 1 | Chip Select |
| REN | 10 | input | 12-38k | TTL | --- | low | PT5D01U | 2 | Read Enable Com |
| WEN | 9 | input | 12-38k | TTL | --- | low | PT5D01U | 2 | Write Enable Com |
| RST | 63 | input | --- | CMOS schmidt | --- | high | PC5D21 | 0.01 | Asynchronous Re |
| INT0N | 11 | output | --- | CMOS | 2.0mA | low | PC5O01 | 0.01 | Interrupt Request |
| INT1N | 12 | output | --- | CMOS | 2.0mA | low | PC5O01 | 0.01 | Interrupt Request |
| DR0 | 38 | input | --- | CMOS | --- | low | PC5D01 | 0.6 | Dpits Receive Dat |
| DR1 | 39 | input | --- | CMOS | --- | low | PC5D01 | 0.6 | Dpits Receive Dat |
| DX0 | 40 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.6 | Dpits Transmit Da |
| DX1 | 41 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.6 | Dpits Transmit Da |
| CK512K | 37 | output | --- | CMOS | 2.0mA | high | PC5O01 | 0.6 | Dpits Bit Rate Clo |
| SR0 | 19 | input | 12-38k | TTL | --- | high | PT5D01U | 0.1 | Serial Receive Dat Stream [0] |
| SR1 | 20 | input | 12-38k | TTL | --- | high | PT5D01U | 0.1 | Serial Receive Dat Stream [1] |
| SX | 21 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.1 | Serial Transmit Da Stream |
| CK2M | 18 | output | --- | CMOS | 4.0mA | high | PC5O02 | 2.1 | Serial Stream Cloc |
| EP0 | 13 | output | --- | CMOS | 2.0mA | high | PC5O01 | 0.01 | not used |
| EP1 | 14 | output | --- | CMOS | 2.0mA | high | PC5O01 | 0.01 | not used |
| EP2 | 15 | output | --- | CMOS | 2.0mA | high | PC5O01 | 0.01 | External Channel |
| EP3 | 16 | output | --- | CMOS | 2.0mA | high | PC5O01 | 0.01 | not used |
| PI | 61 | input | --- | CMOS schmidt | --- | high | PC5D21 | 0.01 | not used |
| NI | 62 | input | --- | CMOS schmidt | --- | high | PC5D21 | 0.01 | not used |
| CLM0 | 43 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| CLM1 | 44 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| CLM2 | 45 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| CLM3 | 46 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| CLM4 | 47 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| CLM5 | 48 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LED Column Drive |
| NROW0 | 50 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [0] |
| NROW1 | 51 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [1] |
| NROW2 | 52 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [2] |
| NROW3 | 53 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [3] |
| NROW4 | 54 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [4] |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| NROW5 | 55 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [5] |
| NROW6 | 56 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [6] |
| NROW7 | 57 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [7] |
| NROW8 | 58 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [8] |
| NROW9 | 59 | output | --- | CMOS | 4.0mA | low | PC5O02 | 0.01 | LED Row Drive [9] |
| IP0 | 27 | input | 12-38k | CMOS | --- | high | PC5D01U | 0.01 | not used |
| IP1 | 28 | input | 12-38k | CMOS | --- | high | PC5D01U | 0.01 | not used |
| IP2 | 29 | input | 12-38k | CMOS | --- | high | PC5D01U | 0.01 | not used |
| IP3 | 30 | input | 12-38k | CMOS | --- | high | PC5D01U | 0.01 | not used |
| OP0 | 23 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LCD Vol.control 1 |
| OP1 | 24 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | LCD Vol.control 2 |
| OP2 | 25 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | not used |
| OP3 | 26 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.01 | not used |
| CK2K | 22 | output | --- | CMOS | 4.0mA | high | PC5O02 | 0.2 | not used |
| CK16M | 36 | output | --- | CMOS | 2.0mA | high | PC5O01 | 16.4 | Master Clock Out |
| OSI | 33 | input | --- | Analog | --- | --- | PC5X02 | 16.4 | X'tal In (XIN) |
| OSO | 34 | output | --- | Analog | --- | --- | PC5X02 | 16.4 | X'tal Out (XOUT) |
| N.C. | 32 | --- | --- | --- | --- | --- | --- | --- | not used |
| N.C. | 42 | --- | --- | --- | --- | --- | --- | --- | not used |
| N.C. | 60 | --- | --- | --- | --- | --- | --- | --- | not used |
| VDD1 | 1 | vdd | --- | --- | --- | --- | --- | --- | Vdd (5V) |
| VDD2 | 31 | vdd | --- | --- | --- | --- | --- | --- | Vdd (5V) |
| VDD3 | 49 | vdd | --- | --- | --- | --- | --- | --- | Vdd (5V) |
| VSS1 | 17 | vss | --- | --- | --- | --- | --- | --- | Vss (GND) |
| VSS2 | 35 | vss | --- | --- | --- | --- | --- | --- | Vss (GND) |
| VSS3 | 64 | vss | --- | --- | --- | --- | --- | --- | Vss (GND) |

## 5.2. IC2


P74 48
P73 47
P72 46
P71 45
P70 44
P67 43
P66 42
P65 41
P64 40
P63 39
P62 38
P61 37
P60 36
P57/WKP7 35
P56/WKP6 34
P55/WKP5 33
P75 49
P76 50
P77 51
P80 52
P81 53
P82 54
P83 55
P84 56
P85 57
P86 58
P87 59
TONED 60
VTref 61
PB7/AN7 62
PB6/AN6 63
CVCC 64
32 P54/WKP4
31 P53/WKP3
30 P52/WKP2
29 P51/WKP1
28 P50/WKP0
27 PA1
26 PA2
25 PA3
24 P10/TMOW
23 P11/TMOFL
22 P12/TMOFH
21 P13/TMIG
20 P14
19 P15/IRQ1
18 P16/IRQ2
17 P17/IRQ3/TMIF
1 X1
2 X2
3 Vss
4 OSC2
5 OSC1
6 TEST
7 Vcc
8 RES
9 P20/RQ4/ADTRG
10 P21/SCK1
11 P22/SI1
12 P23/SO1
13 P24/SCK3
14 P25/RXD
15 P26/TXD
16 P27/IRQ0

| Classification | Terminal | Pin No. | Input/ Output | Function |
|---|---|---|---|---|
| Power supply | Vcc | 7 | - | Power supply terminal |
| | GND | 3 | - | Ground terminal |
| | CVcc | 64 | - | Connect to the Vcc terminal |
| | Vtref | 61 | - | DTMF reference level voltage terminal / Connec Vcc terminal |
| Oscillation | X1 | 1 | Input | Input/Output terminal to the main oscillator. |
| | X2 | 2 | Output | Connect to the ceramic oscillator.(8MHz) |
| | OSC1 | 5 | Input | No use |
| | OSC2 | 4 | Output | No use |
| Reset | RESET | 8 | Input | Reset terminal of MCU (Active Low) |
| Test | TEST | 6 | Input | No use |
| I/O port | P20 | 9 | Output | DTMF tone control |
| | P24 | 13 | Output | Handset tone control |
| | P25 | 14 | Output | SP-Phone tone control |
| | P26 | 15 | Output | Ringer tone control |
| | P27 | 16 | Input | Hook Switch |
| | SCK1 | 10 | Output | LCD serial clock |
| | P22 | 11 | Output | LCD write enable command |
| | SO1 | 12 | Output | LCD data |
| | P17 | 17 | Input | Interrupt request from G/A (IC1) |
| | P16 | 18 | Input | Interrupt request from G/A (IC1) |
| | P15 | 19 | Output | Reset terminal of G/A (IC1) (Active Hi) |
| | P14 | 20 | Output | KEY communication output 1 |
| | P13 | 21 | Output | KEY communication output 2 |
| | P12 | 22 | Output | KEY communication output 3 |
| | P11 | 23 | Output | KEY communication output 4 |
| | P10 | 24 | Output | KEY communication output 5 |
| | P50 | 28 | Input | KEY communication input 0 |
| | P51 | 29 | Input | KEY communication input 1 |
| | P52 | 30 | Input | KEY communication input 2 |
| | P53 | 31 | Input | KEY communication input 3 |
| | P54 | 32 | Input | KEY communication input 4 |
| | P55 | 33 | Input | KEY communication input 5 |
| | P56 | 34 | Input | KEY communication (HOLD key) |
| | P57 | 35 | Input | No use |
| | PA3 | 25 | Output | W.OHCA control |
| | PA2 | 26 | Output | Ringer tone vol. Control 1 |
| | PA1 | 27 | Output | Ringer tone vol. Control 2 |
| | P60 | 36 | Output | Handset speaker mute control |
| | P61 | 37 | Output | Handset mic mute control |
| | P62 | 38 | Output | SP-Phone speaker mute control |
| | P63 | 39 | Output | Off-hook-monitor control |
| | P64 | 40 | Output | Handset power control |

| | | | | |
|---|---|---|---|---|
| | P65 | 41 | Output | SP-Phone power control |
| | P66 | 42 | Output | Side tone control |
| | P67 | 43 | Output | Select A-Law/m-Law |
| | P70 | 44 | Output | SP-Phone mic mute control |
| | P71 | 45 | Output | Handset vol. Control 1 |
| | P72 | 46 | Output | Handset vol. Control 2 |
| | P73 | 47 | Output | Handset vol. Control 3 |
| | P74 | 48 | Output | Read enable terminal of G/A (IC1) (Active Low) |
| | P75 | 49 | Output | Write enable terminal of G/A (IC1) (Active Low) |
| | P76 | 50 | Output | Address bus 1 for G/A (IC1) |
| | P77 | 51 | Output | Address bus 2 for G/A (IC1) |
| | P80 | 52 | Input/ Output | Data bus 1 for G/A (IC1) |
| | P81 | 53 | Input/ Output | Data bus 2 for G/A (IC1) |
| | P82 | 54 | Input/ Output | Data bus 3 for G/A (IC1) |
| | P83 | 55 | Input/ Output | Data bus 4 for G/A (IC1) |
| | P84 | 56 | Output | SP-Phone vol. Control 1 |
| | P85 | 57 | Output | SP-Phone vol. Control 2 |
| | P86 | 58 | Output | SP-Phone vol. Control 3 |
| | P87 | 59 | Output | SP-Phone vol. Control 4 |
| | AN7 | 61 | Input | Select Model/Area cord |
| | AN6 | 62 | Input | Select Ringer position |

# 6. HOW TO REPLACE THE FLAT PACKAGE IC

**If you do not have the special tools (for example: SPOT HEATER) to remove the SPOT HEATER'S Flat IC, If you have solder (large amount) a soldering iron and a cutter knife, you can easily remove IC's even though large than 100 pin.**

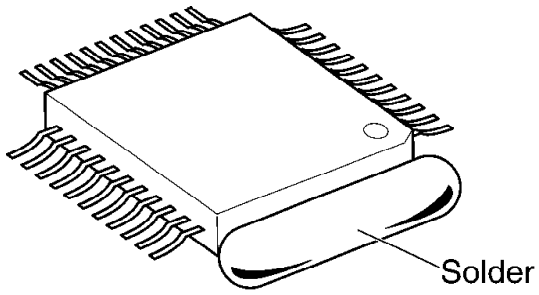
## 6.1. PREPARATION

- **SOLDER / Sparkle Solder 115A-1, 115B-1 or Almit Solder KR-19, KR -19RMA**
- **Soldering iron / Recommended power consumption is between 30 W to 40 W. / Temperature of Copper Rod 662 ± 50°F (350 ± 10°C) / (An expert may handle a 60~80 W iron, but beginner might damage foil by overheating.)**
- **Flux / HI115 Specific gravity 0.863 / (Original flux should be replaced daily.)**

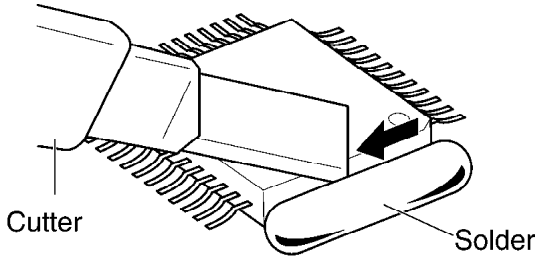
## 6.2. FLAT PACKAGE IC REMOVE PROCEDURE

## 1. When all of the IC lead can not been seen at the standard degree, fill with large quantities of solder.

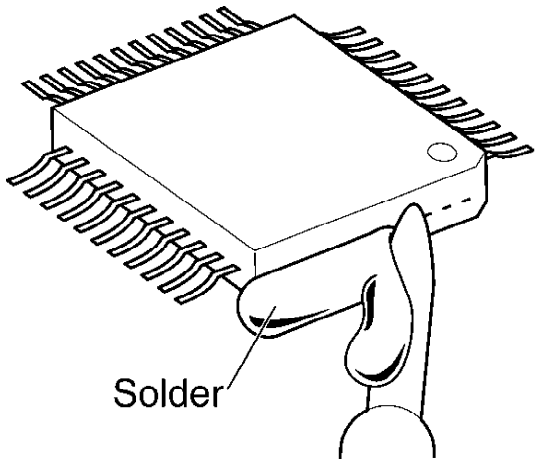
**Note:**
**If you do not fill with solder and directly cut the IC lead with the cutter, stress may build up directly in the P.C.board's pattern. If you do not fill with large quantities of solder as in step 1 the P.C.board pattern may be removed.**




## 2. Using a cutter, cut the lead at the source. (Cut the contents with the cutter lightly 5 or 6 times.)




## 3. Remove when the solder melts. (Remove the lead at the same time.)



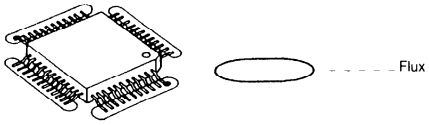

**After removing the Flat IC and when attaching the new IC, remove any of the excess solder on the land using the soldering wire, etc. If the excess solder is not removed from the land, the IC will slip and not be attached properly.**

## 6.3. FLAT PACKAGE IC INSTALLATION PROCEDURE

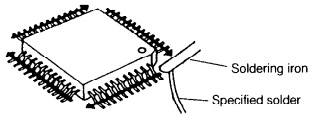
1. **Temporary fix FLAT PACKAGE IC by soldering on two marked pins.**

***Check the accuracy of the IC setting with the corresponding soldering foil.**

2. **Apply flux for all pins of FLAT PACKAGE IC.**

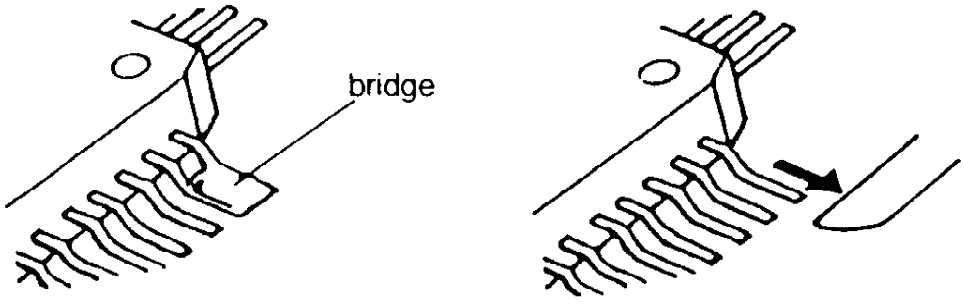



3. **Solder using the specified solder, in the direction of the arrow, by sliding the soldering iron.**




## 6.4. BRIDGE MODIFICATION PROCEDURE

1. **Lightly re-solder the bridged portion.**
2. **Remove the remaining solder along pins using a soldering iron as shown in the figure below.**




# 7. BLOCK DIAGRAM

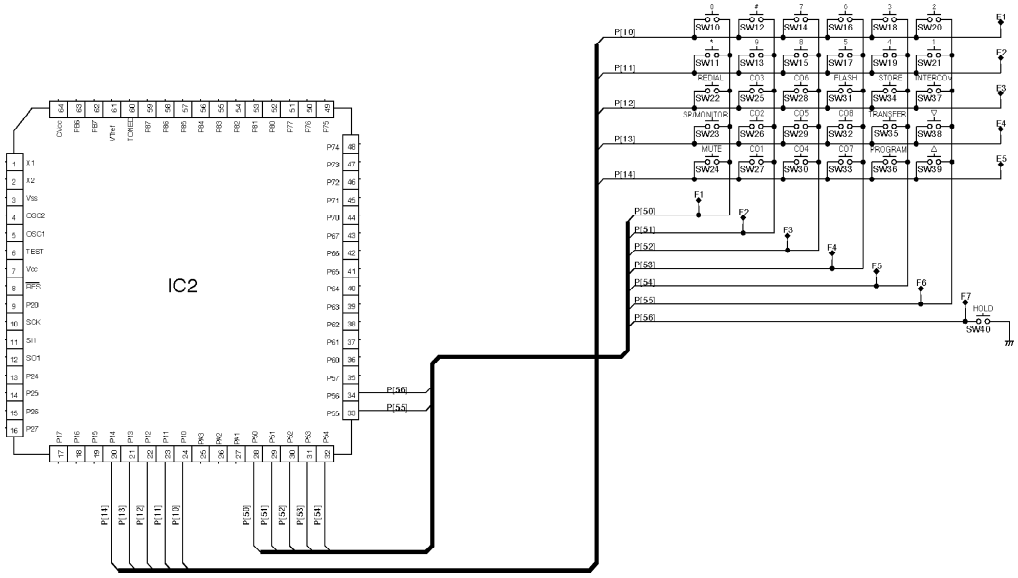
# 8. CIRCUIT OPERATIONS

## 8.1. KEY INPUT CONTROL CIRCUIT

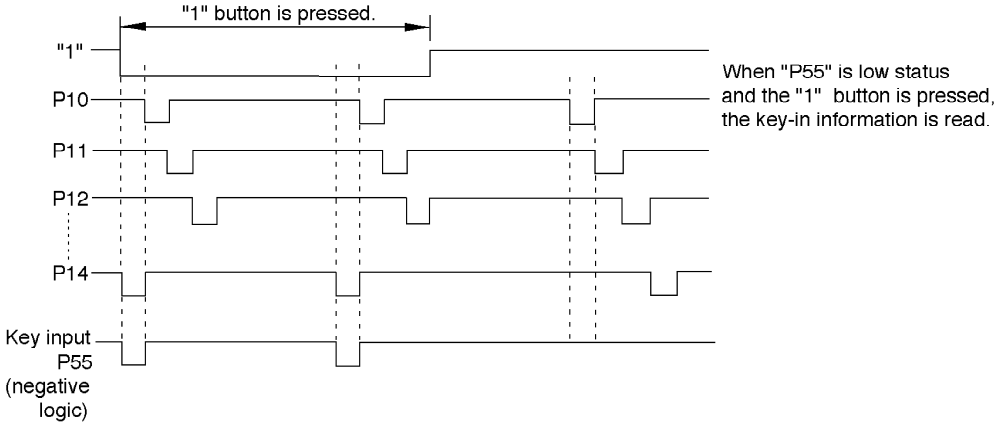
**(1) CIRCUIT OPERATION**

**Sequential input information (negative logic) from the DSHS proprietary telephone is executed by dynamic scanning. / The ports P10 to P14 of IC2 are brought to low status consecutively. / If a key is pressed, the key-in information input is executed by portS P50 to P56.**

Circuit diagram




Key Input Control Timing Chart

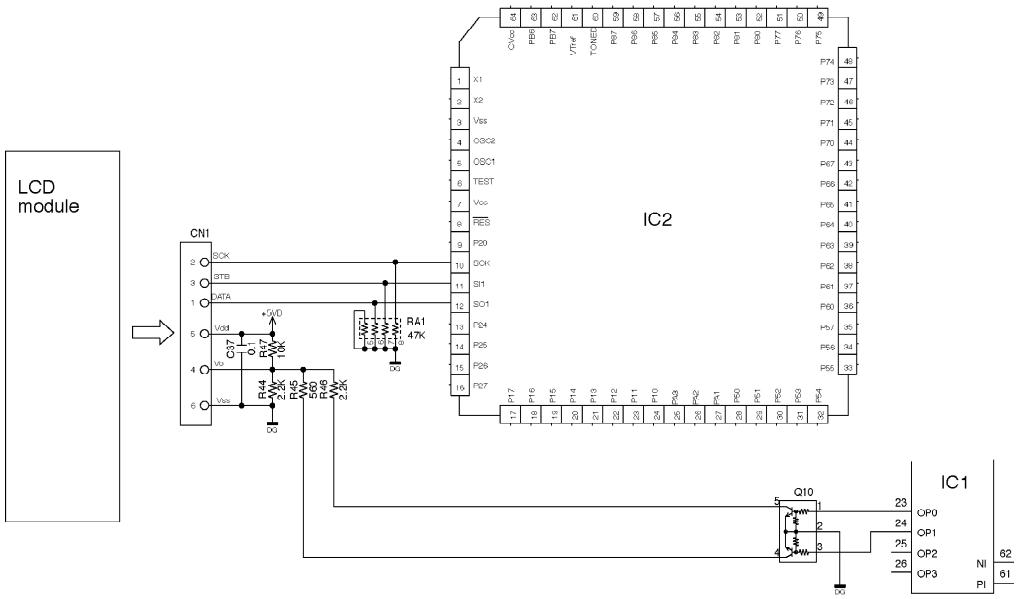



## 8.2. LCD CONTROL CIRCUIT

**(1) CIRCUIT OPERATION**

**The LCD data is output from pins 12 of IC2. / LCD contrast adjustment is performed by the circuit composed of Q10, R44, R45, R46 and R47. / The contrast is determined only by the voltage level between pin 4 of CN1 and +5 V. Higher potential makes the contrast high.**

Circuit diagram




LCD Contrast Control

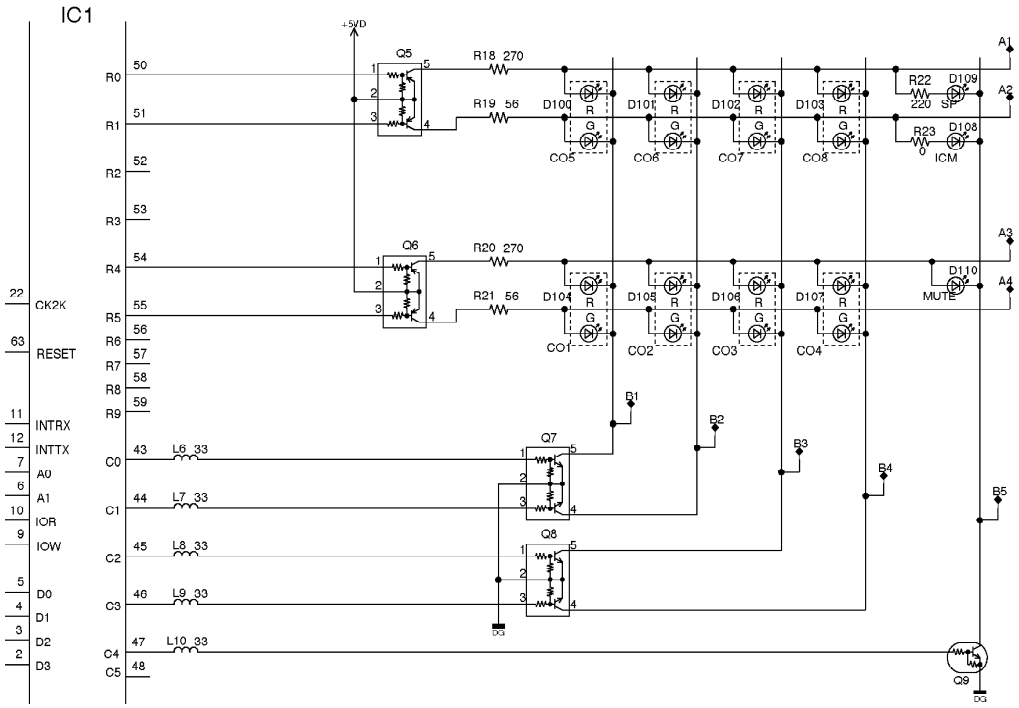
| CONTRAST | IC1 Pin 23 | IC2 Pin 24 |
|---|---|---|
| HIGH | L | L |
| MIDDLE | H | L |
| LOW | L | H |

## 8.3. LED CIRCUIT

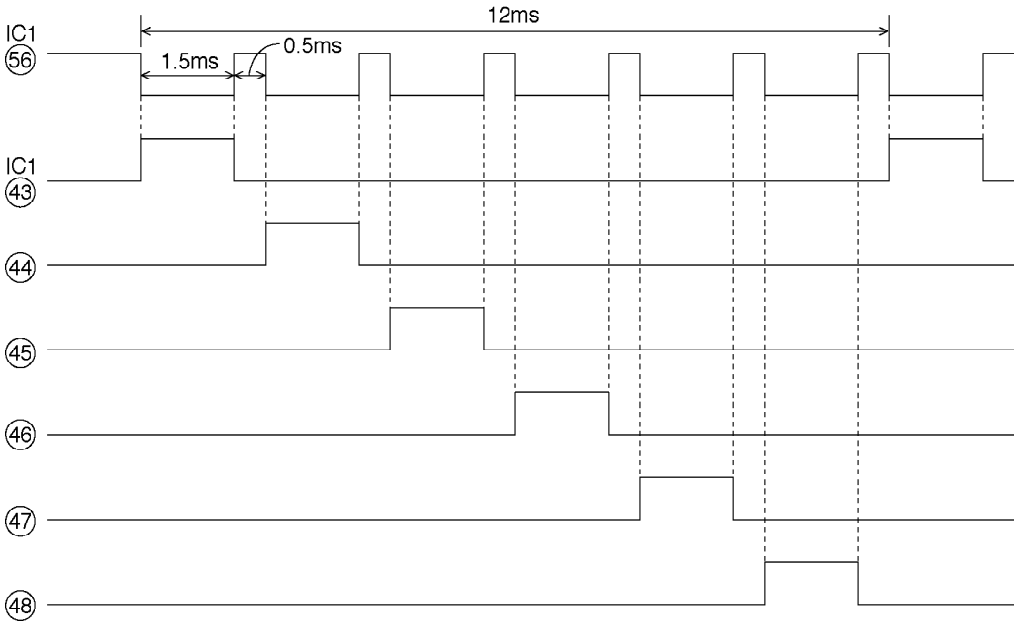
**(1) CIRCUIT OPERATION**

**The LED executes dynamic lighting for the status indicators, and control is executed by the output ports C0 to C4 (column) and R0, R1, R4, R5 (row) of IC1. / A fixed pulse (T=1.5 msec) is output continuously from IC1. This pulse is counted and the output of IC1 is shifted sequentially from C0 to C4. / R0 to R5 of IC1 also output pulses, and the lighting of the LED is controlled by the timing of the output ports C0 to C4.**

Circuit diagram




Timing Chart




## 8.4. DATA COMMUNICATION CIRCUIT

**(1) FUNCTION**

**The data communication circuit serves the following functions: / Information exchanger between the DSHS and DSHS proprietary telephone, key input information as well as data for the LED control, LCD control, etc. This information is continuously exchanged at all times.**

**(2) CIRCUIT OPERATION**

**When the DSHS proprietary telephone receives an IRQ signal from the DSHS and after sending the key input information to the DSHS and receiving data for the LED control, etc., the DSHS proprietary telephone will return to the DSHS an acknowledge signal.**

**(3) RECEPTION**

**The data from the EMSS is received via the H and L lines along the path shown below.**

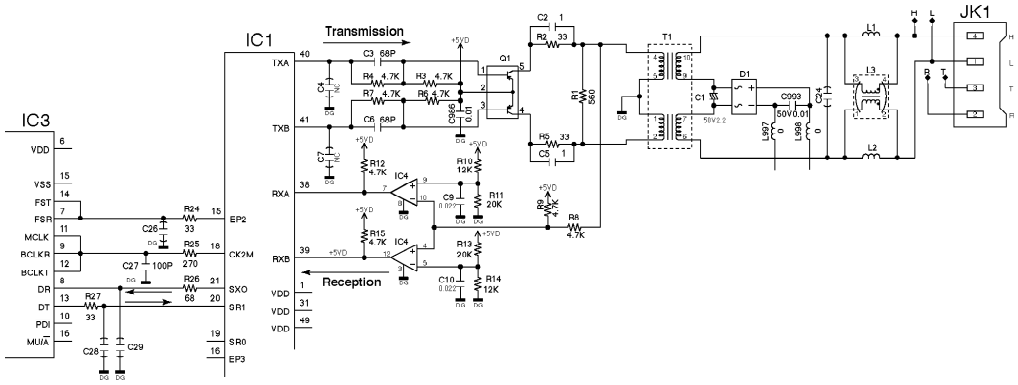
H, L Line →T1→IC4 Pin ④ , ⑩ →IC1 Pin ㊳ , ㊴ →IC1 Pin ㉑ →IC3 Pin ⑧

**(4) TRANSMISSION**

**The data to the EMSS proprietary telephone is transmitted along the following path.**

IC3 Pin ⑬ →IC1 Pin ⑳ →IC1 Pin ㊵ , ㊶ →Q1 → T1→H, L Line

**Circuit diagram**

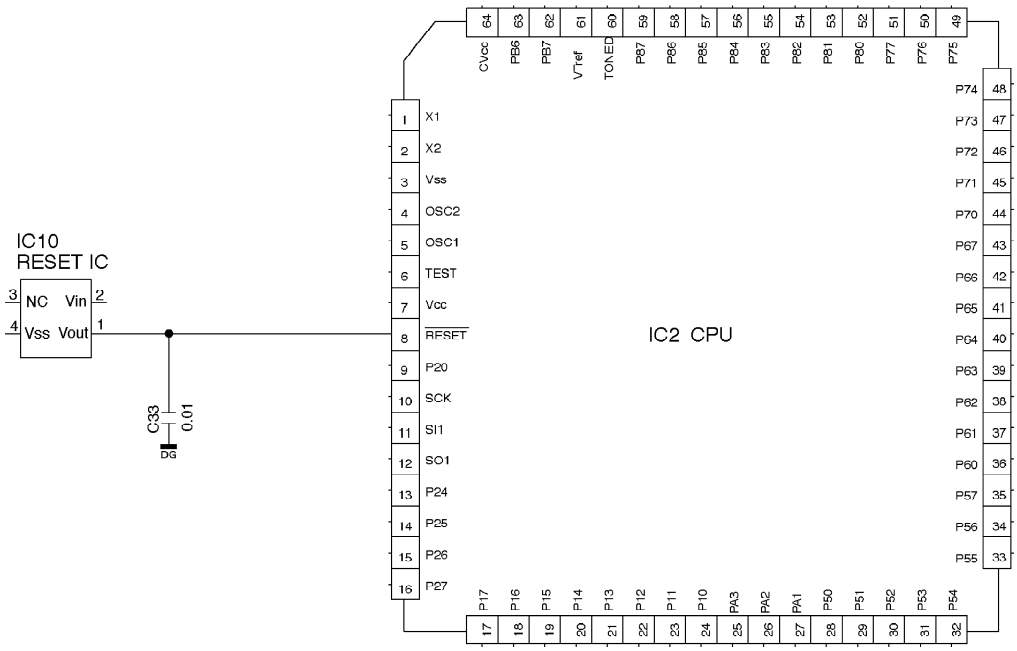



## 8.5. RESET CIRCUIT

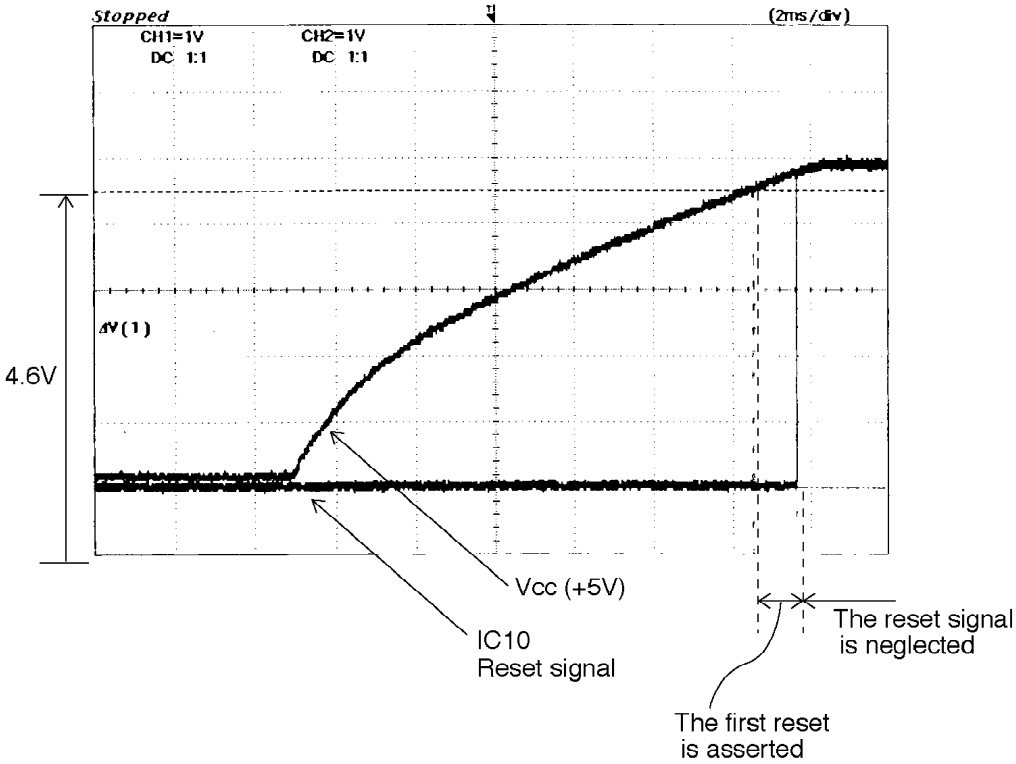
**(1) CIRCUIT OPERATION**

**This circuit is used for transmission of a reset pulse to the CPU (IC2) at the following times, connecting the telephone line jack and circuit operation.**

Circuit diagram




Timing Chart

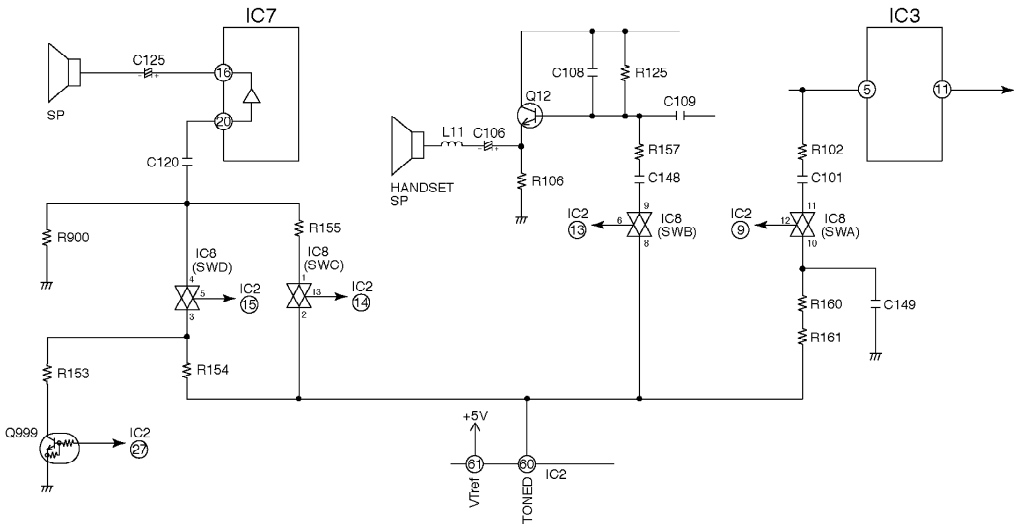



## 8.6. TONE GENERATION CIRCUIT

**(1) FUNCTION**

**All system tones including COL, extension, busy, DTMF signal and key-in tones are sent from Pins 60 of IC2 and controls the path by the Analog Switch (IC8).**

Circuit diagram




**(2) CALLING TONES FROM COL AND EXT.**

**For a calling tone from a CO line or extension, the single row tone signal is output from Pin 60 of IC2 and the tone volume is controlled by transistors Q999.**

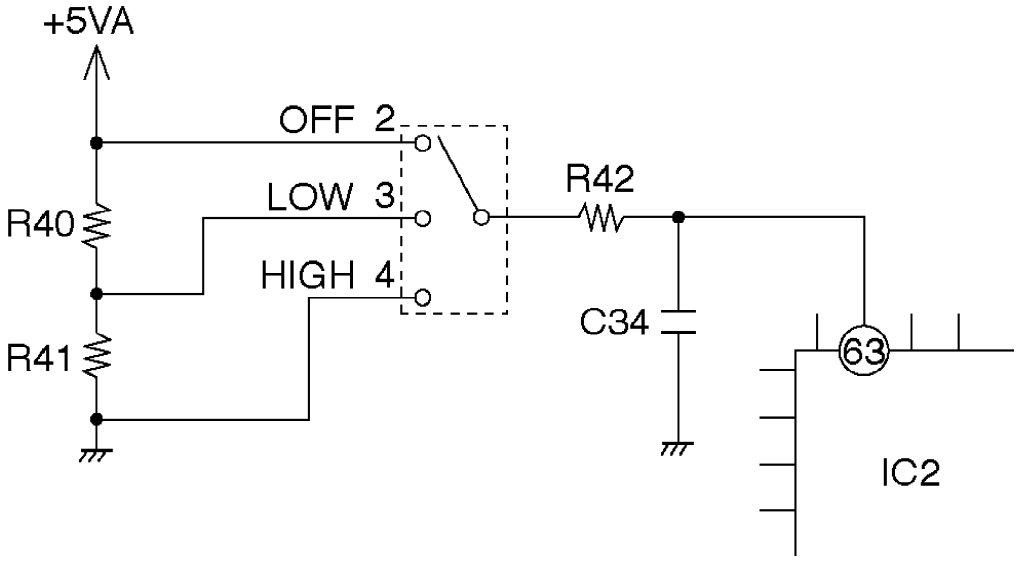
IC2 Pin 60 → IC8 Pin 3 ~ 4 → C120 → IC7 Pin 20 → IC7 Pin 16 → C125 → SP

**Ringer Volume Control**

| Level | OFF | LOW | HIGH |
|---|---|---|---|
| Q999 | OFF | ON* | OFF |

***CAUTION:**

**It is ON with ringer sound and it is OFF with no ringer sound regardless of the ringer volume.**



**(3) BUSY STATION CALLING TONE**

**852 Hz and 697 Hz signals are output from Pin 61 of IC7 alternately at intervals of 60 ms. / The signal flow is shown below.**

IC2 Pin 60 → IC8 Pin 2 ~ 1 → R155 → C120 → IC7 Pin 20 → IC7 Pin 16 → C125 → SP
IC8 Pin 8 ~ 9 → C148 → R157 → Q12 B → Q12 E → C106 → L11 → Handset SP

**(4) DTMF SIGNAL**

**A DTMF tone is generated by IC7 and the signal flow is shown below.**

IC2 Pin 60 → R161 → R160 → IC8 Pin 10 ~ 11 → C101 → R102 → IC3 Pin 5 → Telephone Line
IC8 Pin 8 ~ 9 → C148 → R157 → Q12 → C106 → Handset Speaker
(IC8 Pin 2 ~ 1 → R155 → C120 → IC7 Pin 20 → IC7 Pin 16 → C125 → SP)

| | | High Group | | |
|---|---|---|---|---|
| | | 1209 Hz | 1336Hz | 1477Hz |
| Low Group | 697 Hz | 1 | 2 | 3 |
| | 770 Hz | 4 | 5 | 6 |
| | 852 Hz | 7 | 8 | 9 |
| | 941 Hz | * | 0 | # |

**(5) KEY-IN TONE**

**An 852 Hz single tone is used as the key-in tone. A tone is generated from IC7 and is heard at the speaker. / The signal flow is shown below.**

IC2 Pin 60 → IC8 Pin 8 ~ 9 → C148 → R157 → Q12 → C106 → Handset SP
IC8 Pin 2 ~ 1 → R155 → C120 → IC7 Pin 20 → IC7 Pin 16 → C125 → SP

| CONDITION | IC8 SWA | IC8 SWB | IC8 SWC | IC8 SWD |
|---|---|---|---|---|
| Ringing | OFF | OFF | OFF | ON |
| Call Waiting | OFF | OFF | ON | OFF |
| Tone Dial (Handset) | ON | ON | OFF | OFF |
| Tone Dial (Speakerphone) | ON | OFF | ON | OFF |

## 8.7. HANDSET CIRCUIT

**(1) TRANSMISSION SIGNAL PATH**

**The analog input signal for the handset microphone is changed to a digital signal and sent through the telephone line via the following path:**

Handset MIC → L12 → C111 → R118 → Q16 → C116 → R121 → C100 → R101 → IC3 18 → IC3 13 → IC1 20 → IC1 40, 41 →
Q1 → T1 → Telephone Line

**(2) RECEPTION SIGNAL PATH**

**The digital input signal from the telephone line is changed to an analog signal by IC3 and sent to the receiver via the following path:**

Telephone Line →T1 → IC4 ④, ⑩ →IC1 ㊳, ㊴ → IC1 ㉑ → IC3 ⑧ →IC3 ④ →R100 →C144 → R115 → C109 →

Q12 → C106 → L11 → Handset Sperker

**(3) CIRCUIT DIAGRAM FOR TRANSMISSION / RECEPTION SIGNAL PATH.**

## 8.8. SPEAKER-PHONE CIRCUIT

**(1) FUNCTION**

**This circuit controls the automatic switching of the transmitted and received signals to and from the telephone line, when the unit is used in the hands-free mode.**

**(2) CIRCUIT OPERATION**

**The speakerphone can only provide a one-way communication path. / In other words, it can either transmit an outgoing signal or receive an incoming signal. / This switching circuit is contained in IC8 and consists of a Voice Detector, Tx Attenuator, Rx Attenuator, Comparator and Attenuator Control. The circuit analyzes whether the Tx (transmit) or Rx (receive) signal is louder, and then it processes the signals so that the louder signal is given precedence. / The Voice Detector provides a DC input to the Attenuator Control corresponding to the Tx signal. The Comparator receives a Tx and Rx signal, and supplies DC input to the Attenuator Control corresponding to the Rx signal. The Attenuator Control provides a control signal to the Tx and Rx Attenuator to switch the appropriate signals ON and OFF. The Attenuator Control also detects the level of the volume control to automatically adjust the volume for changing ambient conditions.**

**(3) CONTROL SIGNAL PATH**

**Control signals for transmission and reception are input to IC8 via the following path:**

**(Transmission Control Signal Path)**

MIC → IC7 Pin ⑨ → IC7 Pin ⑩ → IC7 Pin ③ → IC7 Pin ④ → IC7 Pin ⑤

**(Reception Control Signal Path)**

Telephone Line → IC3 Pin ④ → R147 → IC7 Pin ⑦

**(4) TRANSMISSION / RECEPTION SWITCHING**

**The comparison result between Tx and Rx output is a DC level at IC7 Pin 23.**

**Tx level is high..... Pin 23=Pin 20-6mV**

**Rx level is high..... Pin 23=Pin 20-150mV**

**The comparator output is connected to the attenuator control inside IC7.**

**(5) VOICE DETECTOR**

**The output of the mic amp (Pin 10 of IC7) is supplied to Pin 13 of IC7 as a control signal for the voice detector.**

**(6) ATTENUATOR CONTROL**

**The attenuator control detects the setting of the volume control through Pin 24 of IC8 and automatically adjusts the volume for changing ambient conditions.**

**(7) TRANSMISSION SIGNAL PATH**

**The input signal from the microphone is sent through the circuit via the following path:**

MIC →C118 →IC9 ①, ②→C121 → IC7 ⑨→IC7 ⑩ → R145 → C135 →IC7 ③ →IC7 ④→R148→C102 → IC3 ⑱ →
IC3 ⑬→C1 ⑳ → IC1 ㊵, ㊶ → Q1 → T1 →Telephone Line

**(8) RECEPTION SIGNAL PATH**

**Signals received from the telephone line are output to the speaker via the following path:**

Telephone Line →T1→ IC4 ④, ⑩→ IC1 ㊳, ㊴ → IC1 ㉑→ IC3 ⑧ → IC3 ④ → R100 →IC9 ⑪, ⑫→C140 →
R147 → C134 → IC7 ㉙ → IC7 ㉘ →R133 → C119 →C120 → IC7 ⑳ → IC7 ⑯ →C125 →SP

**(9) OFF-HOOK MONITOR CIRCUIT**

**The input signal from the handset microphone is output through the speakerphone circuit.**

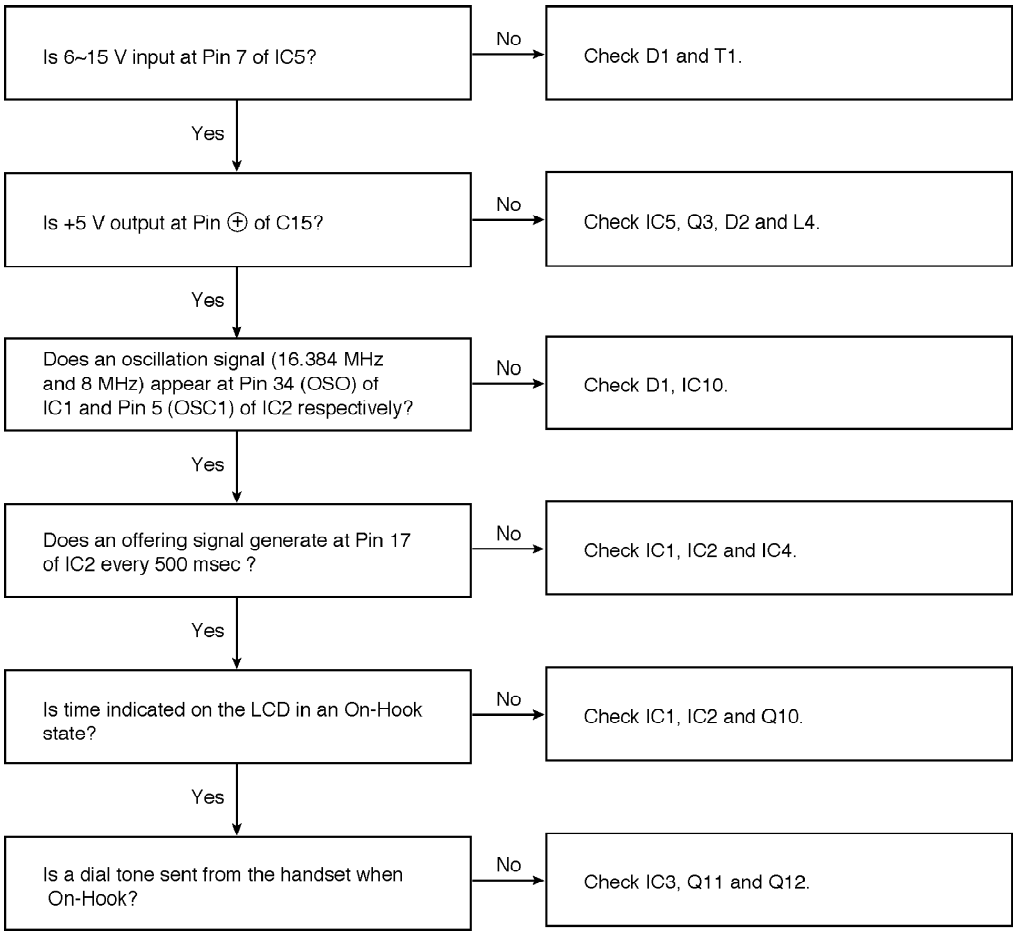
Handset MIC → L12 → C111 →R118 →Q16 →C147 →R162 →IC9 ④, ③→C121 → IC7 ⑨→IC7 ⑩→
R145 → C135 → IC7 ③→ IC7 ④ → R148→ C102 → IC3 ⑱ → IC3 ⑬→ IC1 ⑳ →
IC1 ㊵, ㊶ → Q1 → T1 →Telephone Line

**(10) CIRCUIT DIAGRAM FOR SIGNAL PATH**

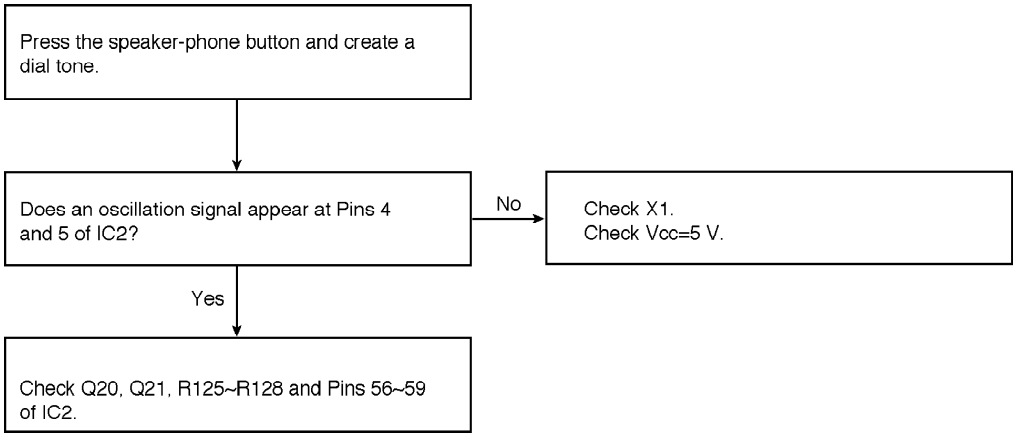
**Refer to page Schematic diagram.**

# 9. TROUBLE SHOOTING GUIDE

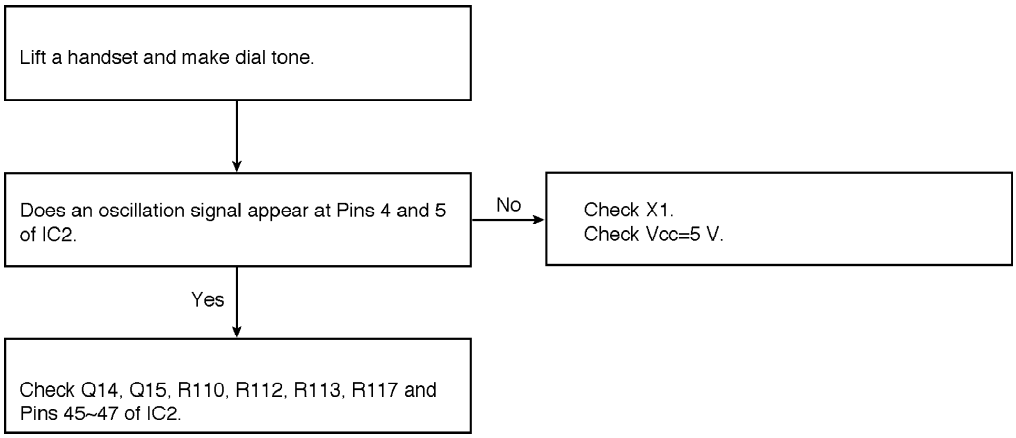
## 9.1. NO OPERATION


Is 6~15 V input at Pin 7 of IC5?
No
Check D1 and T1.
Yes
Is +5 V output at Pin ⊕ of C15?
No
Check IC5, Q3, D2 and L4.
Yes
Does an oscillation signal (16.384 MHz and 8 MHz) appear at Pin 34 (OSO) of IC1 and Pin 5 (OSC1) of IC2 respectively?
No
Check D1, IC10.
Yes
Does an offering signal generate at Pin 17 of IC2 every 500 msec ?
No
Check IC1, IC2 and IC4.
Yes
Is time indicated on the LCD in an On-Hook state?
No
Check IC1, IC2 and Q10.
Yes
Is a dial tone sent from the handset when On-Hook?
No
Check IC3, Q11 and Q12.

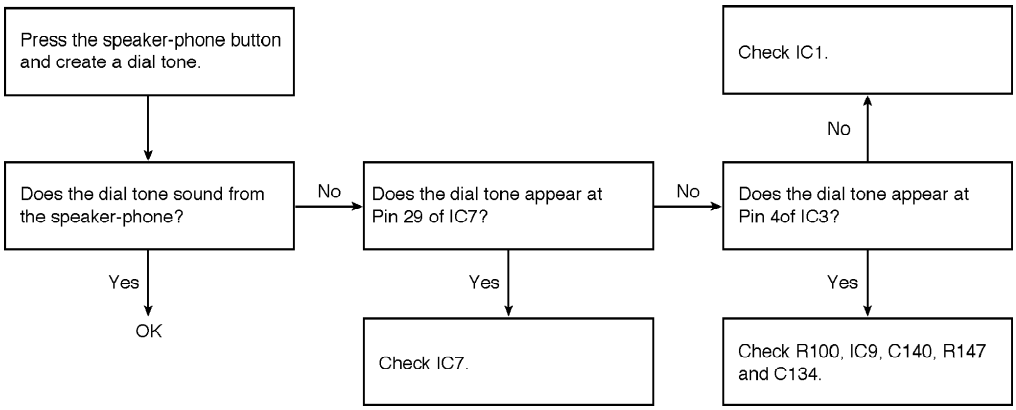
## 9.2. THE ELECTRONIC VOLUME OF THE SPEAKER-PHONE DOES NOT WORK


Press the speaker-phone button and create a dial tone.
Does an oscillation signal appear at Pins 4 and 5 of IC2?
No
Check X1.
Check Vcc=5 V.
Yes
Check Q20, Q21, R125~R128 and Pins 56~59 of IC2.

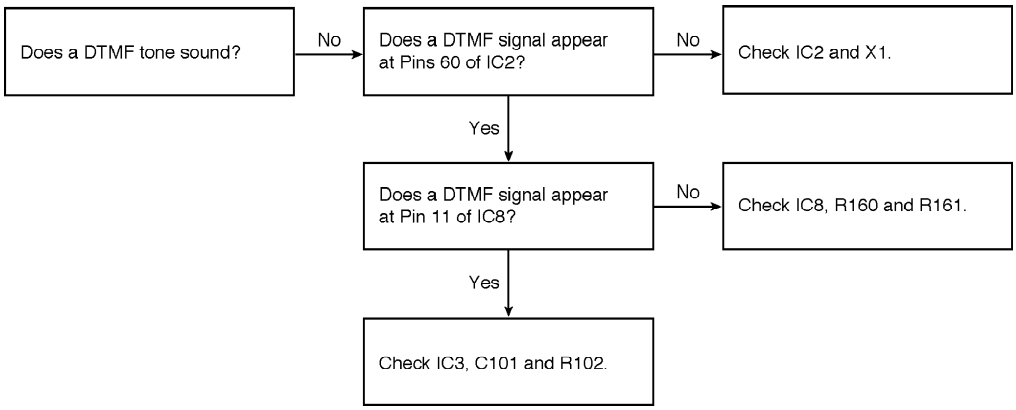
## 9.3. THE ELECTRONIC VOLUME OF THE HANDSET DOES NOT WORK


Lift a handset and make dial tone.
Does an oscillation signal appear at Pins 4 and 5 of IC2.
No
Check X1.
Check Vcc=5 V.
Yes
Check Q14, Q15, R110, R112, R113, R117 and Pins 45~47 of IC2.

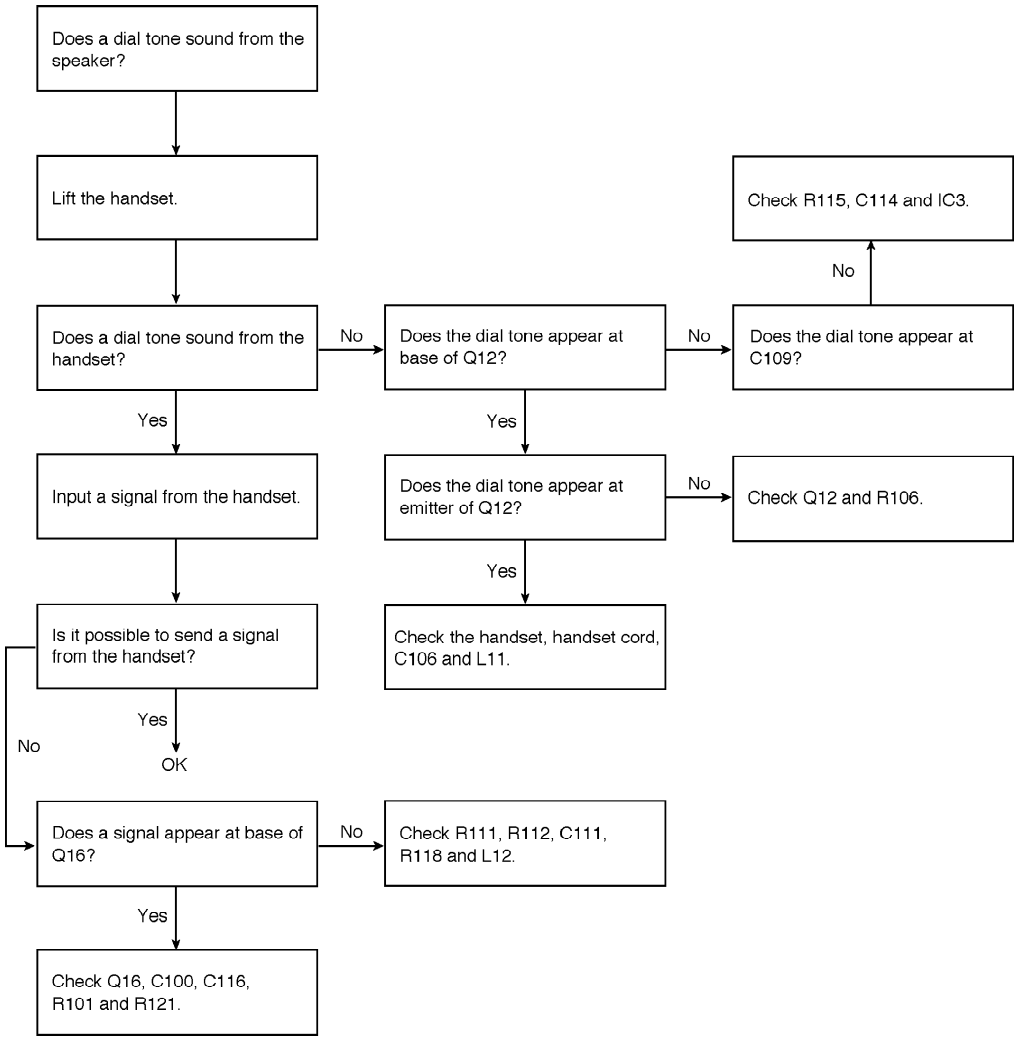
## 9.4. SPEAKER-PHONE TROUBLE




## 9.5. TONE DIAL TROUBLE

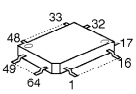

Does a DTMF tone sound?
No
Does a DTMF signal appear at Pins 60 of IC2?
No
Check IC2 and X1.
Yes
Does a DTMF signal appear at Pin 11 of IC8?
No
Check IC8, R160 and R161.
Yes
Check IC3, C101 and R102.

## 9.6. HANDSET TROUBLE

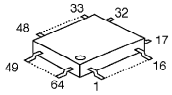

Does a dial tone sound from the speaker?
Lift the handset.
Does a dial tone sound from the handset?
No
Does the dial tone appear at base of Q12?
No
Does the dial tone appear at C109?
No
Check R115, C114 and IC3.
Yes
Input a signal from the handset.
Yes
Does the dial tone appear at emitter of Q12?
No
Check Q12 and R106.
Yes
Check the handset, handset cord, C106 and L11.
Is it possible to send a signal from the handset?
Yes
OK
No
Does a signal appear at base of Q16?
No
Check R111, R112, C111, R118 and L12.
Yes
Check Q16, C100, C116, R101 and R121.

# 10. WAVEFORM

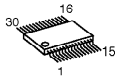
# 11. TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



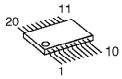

PSVI3622SA21



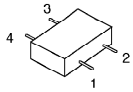

PSVIBU65050D



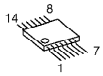

PSVISC77655V



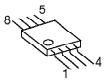

PSVIMC45503W




PSVIXC614602

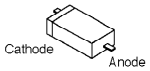



PSVINJM319V,
PQVICD4066BS

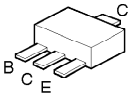



PSVIMC34063M

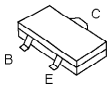
PSVTUMG2NTR,
PSVTUMG11NTR,
PSVTUMS1NTR,
PSVTUMA7NTR




PQVDEC10

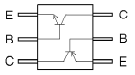



2SA1900



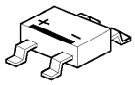

PQVTFB1T3P,PQVTDTC123E,
PQVTDTA143XU,2SA1576R,
UN5213,2SC4081Q,

PSVD1VGCT,
PSVD1SRCT



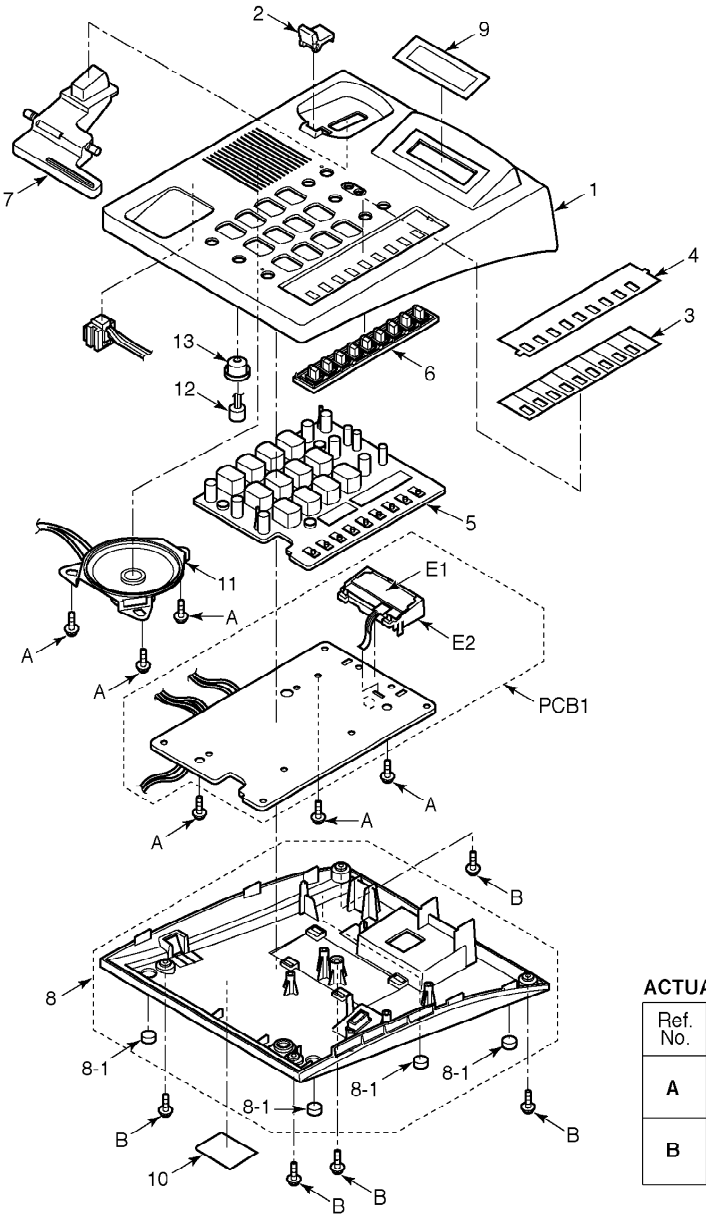

PSVTUMB4NTN

PSVDBRPY1204



PQVDS1ZB60F1

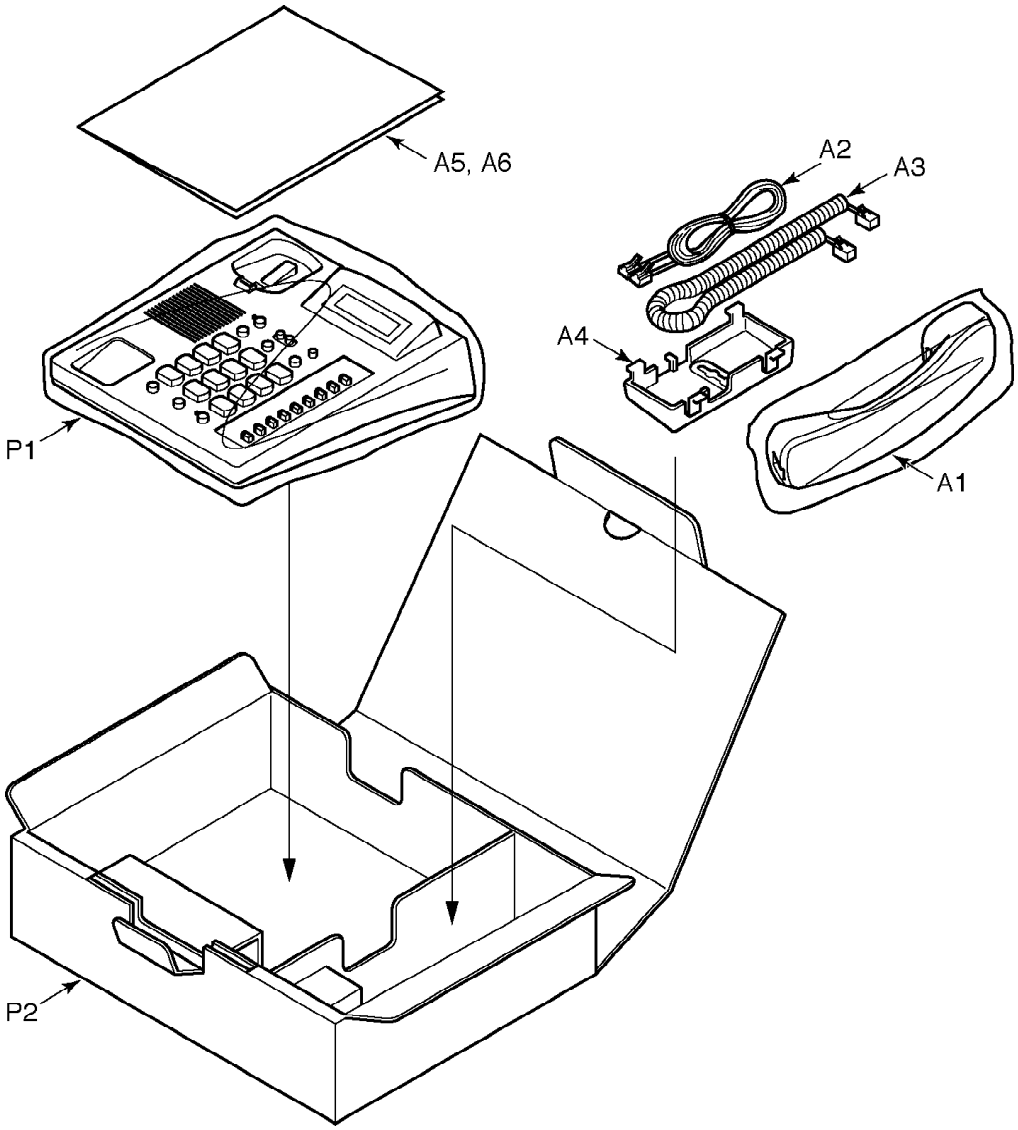
# 12. CABINET AND ELECTRICAL PARTS LOCATION




ACTUAL SIZE OF SCREWS

| Ref. No. | Part No. | Figre |
|---|---|---|
| A | XTW3+S10P | |
| B | XTW3+S14P | |

# 13. ACCESSORIES AND PACKING MATERIALS




# 14. REPLACEMENT PARTS LIST

**Model KX-T7565X/KX-T7565X-B**

**Note:**

**1. RTL (Retention Time Limited)**

**The marking (RTL) indicates that the Retention Time is limited for this item.**

**After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention. At the end of this period, the assembly will no longer be available.**

**2. Important safety notice / Components identified by the ⚠ mark indicates special characteristics important for safety. When**

**replacing any of these components, only use specified manufacture's parts.**

3. **The S mark indicates service standard parts and may differ from production parts.**
4. **RESISTORS & CAPACITORS / Unless otherwise specified; / All resistors are in ohms ( Ω ) K=1000 Ω , M=1000k Ω / All capacitors are in MICRO FARADS ( μ F) P= μ μ F / *Type & Wattage of Resistor**

Type

| | | |
|---|---|---|
| ERC:Solid<br>ERD:Carbon<br>PQRD:Carbon | ERX:Metal Film<br>ERG:Metal Oxide<br>ER0:Metal Film | PQ4R:Carbon<br>ERS:Fusible Resistor<br>ERF:Cement Resistor |

Wattege

| | | | | | |
|---|---|---|---|---|---|
| 10,16:1/8W | 14,25:1/4W | 12:1/2W | 1:1W | 2:2W | 3:3W |

*Type & Voltage of Capacitor

Type

| | |
|---|---|
| ECFD:Semi-Conductor<br>ECQS:Styrol<br>PQCUV:Chip<br>ECQMS:Mica | ECCD,ECKD,ECBT,PQCBC:Ceramic<br>ECQE,ECQV,ECQG:Polyester<br>ECEA,ECSZ:Electlytic<br>ECQP:Polypropylene |

Voltage

| ECQ Type | ECQG<br>ECQV Type | ECSZ Type | Others | |
|---|---|---|---|---|
| 1H:50V<br>2A:100V<br>2E:250V<br>2H:500V | 05:50V<br>1:100V<br>2:200V | 0F:3.15V<br>1A:10V<br>1V:35V<br>0J:6.3V | 0J :6.3V<br>1A :10V<br>1C :16V<br>1E,25:25V | 1V :35V<br>50,1H:50V<br>1J :63V<br>2A :100V |

## 14.1. CABINET AND ELECTRICAL PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| 1 | PSKM1079Z1 | CABINET, UPPER / (WHITE VERSION) | S |
| 1 | PSKM1079Z2 | CABINET, UPPER / (BLACK VERSION) | S |
| 2 | PQKE10070Z3 | HANGER (WHITE VERSION) | S |
| 2 | PQKE10070Z1 | HANGER (BLACK VERSION) | S |
| 3 | PSGD1056Z | CARD, TEL | |
| 4 | PSHR1223Z | COVER, TEL CARD | |
| 5 | PSSX1017Z1 | KEY SWITCH / (WHITE VERSION) | S |
| 5 | PSSX1017Z2 | KEY SWITCH / (BLACK VERSION) | S |
| 6 | PSBX1084Z1 | BUTTON, CO KEY / (WHITE VERSION) | S |
| 6 | PSBX1084Z2 | BUTTON, CO KEY (BLACK VERSION) | S |
| 7 | PSBH1004Z1 | BUTTON, HOOK (WHITE VERSION) | S |
| 7 | PSBH1004Z2 | BUTTON, HOOK (BLACK VERSION) | S |
| 8 | PSYF1033Z1 | CABINET, LOWER / (WHITE VERSION) | S |
| 8 | PSYF1033Z2 | CABINET, LOWER / (BLACK VERSION) | S |
| 8-1 | PSHA1002Z | RUBBER PARTS, FOOT | |
| 9 | PSGP1067Z1 | PANEL, LCD (WHITE VERSION) | S |
| 9 | PSGP1067Z2 | PANEL, LCD (BLACK VERSION) | S |
| 10 | PSGT2071Z | NAME PLATE (WHITE VERSION) | |
| 10 | PSGT2072Z | NAME PLATE (BLACK VERSION) | |
| 11 | PQAS57P03Z | SPEAKER | |
| 12 | PQJM122Z | MICROPHONE | |
| 13 | PQMG10022Z | RUBBER PARTS, MIC, COVER | |

## 14.2. ACCESSORIES AND PACKING MATERIALS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| A1 | PQJXF0202Z | HANDSET (WHITE VERSION) | |
| A1 | PQJXF0201Z | HANDSET (BLACK VERSION) | |
| A2 | PSJA1068Z | TEL CORD | |
| A3 | PQJA214Y | CURL CORD (WHITE VERSION) | |
| A3 | PQJA214V | CURL CORD (BLACK VERSION) | |
| A4 | PQKL24Z82 | STAND (WHITE VERSION) | S |
| A4 | PQKL24Z0 | STAND (BLACK VERSION) | S |
| A5 | PSQW1586Z | QUICK REFERENCE GUIDE / (ENGLISH) | |
| A6 | PSQW1587Z | QUICK REFERENCE GUIDE / (SPANISH) | |
| P1 | PQPP170Z | PROTECTION COVER | |
| P2 | PSPK1834Z | GIFT BOX (WHITE VERSION) | |
| P2 | PSPK1835Z | GIFT BOX (BLACK VERSION) | |

## 14.3. MAIN BOARD PARTS

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| PCB1 | PSWPT7565X | MAIN BOARD ASS'Y (RTL) | |
| | | (ICS) | |
| IC1 | PSVIBU65050D | IC | |
| IC2 | PSVI3622SA21 | IC | |
| IC3 | PQVIMC45503W | IC | S |
| IC4 | PQVINJM319V | IC | |
| IC5 | PQVIMC34063M | IC | |
| IC7 | PQVISC77655V | IC | |
| IC8 | PSVICD4066BS | IC | |
| IC9 | PSVICD4066BS | IC | |
| IC10 | PSVIXC614602 | IC | |
| | | (TRANSISTORS) | |
| Q1 | PSVTUMS1NTR | TRANSISTOR(SI) | |
| Q3 | 2SA1900 | TRANSISTOR(SI) | |
| Q4 | PSVTUMB4NTN | TRANSISTOR(SI) | |
| Q5 | PSVTUMA7NTR | TRANSISTOR(SI) | |
| Q6 | PSVTUMA7NTR | TRANSISTOR(SI) | |
| Q7 | PSVTUMG11NTR | TRANSISTOR(SI) | |
| Q8 | PSVTUMG11NTR | TRANSISTOR(SI) | |
| Q9 | PQVTDTC123E | TRANSISTOR(SI) | |
| Q10 | PSVTUMG2NTR | TRANSISTOR(SI) | |
| Q11 | PQVTDTA143XU | TRANSISTOR(SI) | |
| Q12 | 2SC4081Q | TRANSISTOR(SI) | |
| Q13 | PQVTFB1J3P | TRANSISTOR(SI) | |
| Q14 | PSVTUMG2NTR | TRANSISTOR(SI) | |
| Q15 | UN5213 | TRANSISTOR(SI) | S |
| Q16 | 2SC4081Q | TRANSISTOR(SI) | |
| Q18 | PSVTUMG2NTR | TRANSISTOR(SI) | |
| Q19 | PQVTDTC123E | TRANSISTOR(SI) | |
| Q20 | PSVTUMG2NTR | TRANSISTOR(SI) | |
| Q21 | PSVTUMG2NTR | TRANSISTOR(SI) | |
| Q200 | 2SA1576R | TRANSISTOR(SI) | |
| Q201 | 2SA1576R | TRANSISTOR(SI) | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| Q202 | 2SA1576R | TRANSISTOR(SI) | |
| Q999 | UN5213 | TRANSISTOR(SI) | S |
| | | (DIODES) | |
| D1 | PQVDS1ZB60F1 | DIODE(SI) | |
| D2 | PQVDEC10 | DIODE(SI) | |
| D100 | PQVDBRPY1204 | LED | S |
| D101 | PQVDBRPY1204 | LED | |
| D102 | PQVDBRPY1204 | LED | |
| D103 | PQVDBRPY1204 | LED | |
| D104 | PQVDBRPY1204 | LED | |
| D105 | PQVDBRPY1204 | LED | |
| D106 | PQVDBRPY1204 | LED | |
| D107 | PQVDBRPY1204 | LED | |
| D108 | PSVD1VGCT | LED | |
| D109 | PSVD1SRCT | LED | |
| D110 | PSVD1SRCT | LED | |
| | | (CONNECTORS) | |
| CN1 | PSJS06B01Z | CONNECTOR, 6P | |
| | | (COILS) | |
| R999 | PQLQR1RS121 | COIL | |
| L1 | PQLQR1LT | COIL | |
| L2 | PQLQR1LT | COIL | |
| L4 | ELC09D331F | COIL | |
| L5 | PQLQR1RM601 | COIL | |
| L11 | PQLQR1LT | COIL | |
| L12 | PQLQR1LT | COIL | |
| L13 | PQLQR1LT | COIL | |
| | | (COMPONENTS COMBINATION) | |
| RA1 | EXB38V473JV | RESISTOR ARRAY, 47K | |
| RA2 | EXB38V473JV | RESISTOR ARRAY, 47K | |
| | | (CRYSTAL OSCILLATORS) | |
| X1 | PQVBCST8.00M | CRYSTAL OSCILLATOR | |
| X2 | PSVCC0052C | CRYSTAL OSCILLATOR | |
| | | (JACKS) | |
| JK1 | PSJJ1T020Z | JACK, SOCKET | |
| W002 | PQJJ1TB2T | JACK, HANDSET | S |
| | | (SWITCHS) | |
| SW1 | ESE14A211C | SWITCH, HOOK | |
| SW2 | PQSS3B101Z | SWITCH, RINGER | |
| | | (TRANSFORMER) | |
| T1 | PSLT9Z4A | TRANSFORMER | |
| | | (RESISTORS) | |
| L6 | ERJ3GEYJ330 | 33 | |
| L7 | ERJ3GEYJ330 | 33 | |
| L8 | ERJ3GEYJ330 | 33 | |
| L9 | ERJ3GEYJ330 | 33 | |
| L10 | ERJ3GEYJ330 | 33 | |
| L997 | ERJ6GEY0R00 | 0 | |
| L997 | PQ4R10XJ000 | 0 | |
| L998 | PQ4R10XJ000 | 0 | |
| C102 | ERJ3GEYJ273 | 27K | |
| R1 | ERJ3GEYJ561 | 560 | |
| R2 | ERJ3GEYJ330 | 33 | |
| R3 | ERJ3GEYJ472 | 4.7K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R4 | ERJ3GEYJ472 | 4.7K | |
| R5 | ERJ3GEYJ330 | 33 | |
| R6 | ERJ3GEYJ472 | 4.7K | |
| R7 | ERJ3GEYJ472 | 4.7K | |
| R8 | ERJ3GEYJ472 | 4.7K | |
| R9 | ERJ3GEYJ472 | 4.7K | |
| R10 | ERJ3GEYJ123 | 12K | |
| R11 | ERJ3GEYJ203 | 20K | |
| R12 | ERJ3GEYJ472 | 4.7K | |
| R13 | ERJ3GEYJ203 | 20K | |
| R14 | ERJ3GEYJ123 | 12K | |
| R15 | ERJ3GEYJ472 | 4.7K | |
| R16 | ERJ3GEYJ105 | 1M | |
| R17 | ERJ3GEYJ182 | 1.8K | |
| R18 | ERJ3GEYJ271 | 270 | |
| R19 | ERJ3GEYJ560 | 56 | |
| R20 | ERJ3GEYJ271 | 270 | |
| R21 | ERJ3GEYJ560 | 56 | |
| R22 | ERJ3GEYJ221 | 220 | |
| R23 | ERJ3GEY0R00 | 0 | |
| R24 | ERJ3GEYJ330 | 33 | |
| R25 | ERJ3GEYJ271 | 270 | |
| R26 | ERJ3GEYJ680 | 68 | |
| R27 | ERJ3GEYJ330 | 33 | |
| R28 | ERJ3GEYJ330 | 33 | |
| R29 | ERJ3GEYJ330 | 33 | |
| R30 | ERJ3GEYJ330 | 33 | |
| R31 | ERJ3GEYJ330 | 33 | |
| R32 | ERJ3GEYJ330 | 33 | |
| R33 | ERJ3GEYJ330 | 33 | |
| R39 | ERJ3GEYJ103 | 10K | |
| R40 | ERJ3GEYJ273 | 27K | |
| R41 | ERJ3GEYJ473 | 47K | |
| R42 | ERJ3GEYJ103 | 10K | |
| R43 | ERJ3GEYJ104 | 100K | |
| R44 | ERJ3GEYJ222 | 2.2K | |
| R45 | ERJ3GEYJ561 | 560 | |
| R46 | ERJ3GEYJ222 | 2.2K | |
| R47 | ERJ3GEYJ103 | 10K | |
| R50 | ERJ3GEYJ332 | 3.3K | |
| R51 | PQ4R10XJ122 | 1.2K | S |
| R52 | ERJ3GEYJ221 | 220 | |
| R53 | PQ4R18XJ472 | 4.7K | S |
| R54 | ERJ3GEYJ104 | 100K | |
| R55 | ERJ3GEYJ562 | 5.6K | |
| R56 | ERJ3GEYJ224 | 220K | |
| R57 | ERJ3GEYJ112 | 1.1K | |
| R58 | ERJ3GEYJ1R2 | 1.2 | |
| R60 | ERJ3GEYJ105 | 1M | |
| R100 | ERJ3GEY0R00 | 0 | |
| R101 | ERJ3GEYJ103 | 10K | |
| R102 | ERJ3GEYJ472 | 4.7K | |
| R103 | ERJ3GEYJ472 | 4.7K | |
| R104 | ERJ3GEYJ103 | 10K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R105 | ERJ3GEYJ104 | 100K | |
| R106 | ERJ3GEYJ102 | 1K | |
| R107 | ERJ3GEYJ104 | 100K | |
| R108 | ERJ3GEYJ101 | 100 | |
| R109 | ERJ3GEYJ474 | 470K | |
| R110 | ERJ3GEYJ822 | 8.2K | |
| R111 | ERJ3GEYJ222 | 2.2K | |
| R112 | ERJ3GEYJ222 | 2.2K | |
| R113 | ERJ3GEYJ392 | 3.9K | |
| R114 | ERJ3GEYJ334 | 330K | |
| R115 | ERJ3GEYJ123 | 12K | |
| R116 | ERJ3GEYJ392 | 3.9K | |
| R117 | ERJ3GEYJ222 | 2.2K | |
| R118 | ERJ3GEYJ332 | 3.3K | |
| R119 | ERJ3GEYJ274 | 270K | |
| R120 | ERJ3GEYJ221 | 220 | |
| R121 | ERJ3GEYJ223 | 22K | |
| R122 | ERJ3GEYJ223 | 22K | |
| R123 | ERJ3GEYJ222 | 2.2K | |
| R124 | ERJ3GEY0R00 | 0 | |
| R125 | ERJ3GEYJ224 | 220K | |
| R126 | ERJ3GEYJ124 | 120K | |
| R127 | ERJ3GEYJ563 | 56K | |
| R128 | ERJ3GEYJ273 | 27K | |
| R129 | ERJ3GEYJ182 | 1.8K | |
| R130 | ERJ3GEYJ123 | 12K | |
| R131 | ERJ3GEYJ104 | 100K | |
| R132 | ERJ3GEYJ104 | 100K | |
| R133 | ERJ3GEYJ101 | 100 | |
| R134 | ERJ3GEYJ183 | 18K | |
| R135 | ERJ3GEYJ224 | 220K | |
| R136 | PQ4R18XJ3R3 | 3.3 | S |
| R137 | ERJ3GEYJ104 | 100K | |
| R138 | ERJ3GEYJ225 | 2.2M | |
| R139 | ERJ3GEYJ303 | 30K | |
| R140 | ERJ3GEYJ753 | 75K | |
| R141 | ERJ3GEYJ152 | 1.5K | |
| R142 | ERJ3GEYJ682 | 6.8K | |
| R143 | ERJ3GEYJ275 | 2.7M | |
| R144 | ERJ3GEYJ472 | 4.7K | |
| R145 | ERJ3GEYJ562 | 5.6K | |
| R147 | ERJ3GEYJ123 | 12K | |
| R149 | ERJ3GEYJ152 | 1.5K | |
| R153 | ERJ3GEYJ272 | 2.7K | |
| R154 | ERJ3GEYJ334 | 330K | |
| R155 | ERJ3GEYJ335 | 3.3M | |
| R157 | ERJ3GEYJ105 | 1M | |
| R160 | ERJ3GEYJ274 | 270K | |
| R161 | ERJ3GEYJ393 | 39K | |
| R162 | ERJ3GEYJ224 | 220K | |
| R301 | ERJ3GEYJ153 | 15K | |
| R302 | ERJ3GEYJ105 | 1M | |
| R303 | ERJ3GEYJ224 | 220K | |
| R304 | ERJ3GEYJ474 | 470K | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| R305 | ERJ3GEYJ682 | 6.8K | |
| R306 | ERJ3GEYJ224 | 220K | |
| R307 | ERJ3GEYJ104 | 100K | |
| R900 | ERJ3GEYJ104 | 100K | |
| R996 | ERJ3GEYJ330 | 33 | |
| R997 | ERJ3GEYJ473 | 47K | |
| R998 | ERJ3GEY0R00 | 0 | |
| | | (CAPACITORS) | |
| R148 | ECUV1C333KDV | 0.033 | S |
| C1 | ECEV1HA2R2N | 2.2 | |
| C2 | PQCUV1H105JC | 1 | S |
| C3 | ECUV1H680JCV | 68P | |
| C5 | PQCUV1H105JC | 1 | S |
| C6 | ECUV1H680JCV | 68P | |
| C8 | ECUV1C104KBV | 0.1 | S |
| C9 | ECUV1H223KBV | 0.022 | S |
| C10 | ECUV1H223KBV | 0.022 | S |
| C11 | ECUV1C104KBV | 0.1 | S |
| C12 | ECEA1HU101 | 100 | |
| C13 | PQCUV1H224ZF | 0.22 | |
| C14 | ECUV1H181JCV | 180P | |
| C15 | ECEV0JA221WP | 220 | |
| C17 | ECUV1C104KBV | 0.1 | S |
| C19 | ECUV1C104KBV | 0.1 | S |
| C21 | ECUV1C104KBV | 0.1 | S |
| C22 | ECUV1H150JCV | 15P | |
| C23 | ECUV1H390JCV | 39P | |
| C25 | ECUV1H103KFV | 0.01 | S |
| C27 | ECUV1H101JCV | 100P | |
| C30 | ECUV1C104KBV | 0.1 | S |
| C31 | ECUV1C104KBV | 0.1 | S |
| C32 | ECUV1C104KBV | 0.1 | S |
| C33 | ECUV1H103KFV | 0.01 | S |
| C34 | ECUV1H103KFV | 0.01 | S |
| C37 | ECUV1C104KBV | 0.1 | S |
| C38 | ECUV1H103KFV | 0.01 | S |
| C100 | ECUV1H223KBV | 0.022 | S |
| C101 | ECUV1C104KBV | 0.1 | |
| C103 | ECUV1H151JCV | 150P | |
| C105 | ECST0JY106 | 10 | |
| C106 | ECST0JY106 | 10 | |
| C107 | PSCEV0JA101 | 100P | |
| C108 | ECUV1H103KBV | 0.01 | |
| C109 | ECUV1C104KBV | 0.1 | |
| C110 | ECST0JY106 | 10 | |
| C111 | ECUV1C104KBV | 0.1 | |
| C112 | ECUV1C333KDV | 0.033 | S |
| C113 | ECUV1H222KBV | 0.0022 | |
| C114 | ECUV1C473KBV | 0.047 | |
| C115 | ECUV1C473KBV | 0.047 | |
| C116 | ECUV1C104KBV | 0.1 | |
| C118 | ECUV1C683KBV | 0.068 | |
| C119 | ECUV1H223KBV | 0.022 | S |
| C120 | ECUV1C104KBV | 0.1 | |

| Ref. No. | Part No. | Part Name & Description | Remarks |
|---|---|---|---|
| C121 | ECUV1C104KBV | 0.1 | |
| C122 | ECUV1C683KBV | 0.068 | |
| C123 | PQCUV1A475ZF | 4.7 | |
| C124 | PSCEV0JA101 | 100 | |
| C125 | PSCEV0JA101 | 100 | |
| C126 | PSCEV0JA102 | 1000 | |
| C127 | PQCUV1A475ZF | 4.7 | |
| C128 | PSCEV0JA101 | 100 | |
| C129 | PSCEV0JA470 | 47P | |
| C130 | PQCUV1A475ZF | 4.7 | |
| C131 | PQCUV1H105JC | 1 | S |
| C132 | PQCUV1H105JC | 1 | S |
| C133 | ECUV1C683KBV | 0.068 | |
| C134 | ECUV1C104KBV | 0.1 | |
| C135 | ECUV1C104KBV | 0.1 | |
| C136 | ECUV1C104KBV | 0.1 | |
| C137 | ECUV1C333KDV | 0.033 | S |
| C138 | ECUV1C473KBV | 0.047 | |
| C139 | ECUV1H102KBV | 0.001 | |
| C140 | ECUV1C104KBV | 0.1 | |
| C147 | ECUV1H102KBV | 0.001 | |
| C148 | ECUV1C104KBV | 0.1 | |
| C149 | ECUV1H332KBV | 0.0033 | |
| C301 | PQCUV1H224ZF | 0.22 | |
| C302 | ECUV1H104ZFV | 0.1 | |
| C986 | ECUV1H103KFV | 0.01 | S |
| C987 | ECEV0JA221WP | 220 | |
| C993 | ECUV1H103KFV | 0.01 | S |
| C995 | ECUV1H470JCV | 47P | |
| C997 | ECUV1H102KBV | 0.001 | |
| C999 | ECUV1H103KFV | 0.01 | S |
| | | (OTHERS) | |
| E1 | PSADLMG161S3 | LIQUID CRYSTAL DISPLAY | |
| E2 | PSHR1222Z | LCD HOLDER | |

# 15. SCHMATIC DIAGRAM

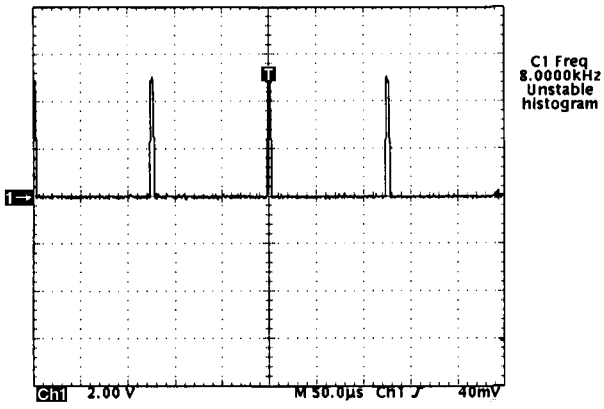
# 16. PRINTED CIRCUIT BOARD (MAIN BOARD)

## 16.1. COMPONNENT VIEW

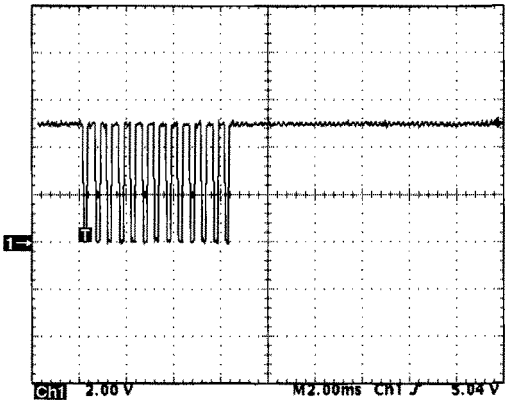
## 16.2. BOTTOM VIEW

### H(Q) KXT7565X / KXT7565XB / Printed in Japan

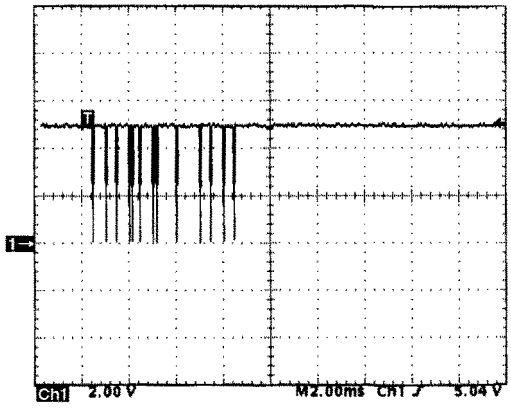
⑨ EP2



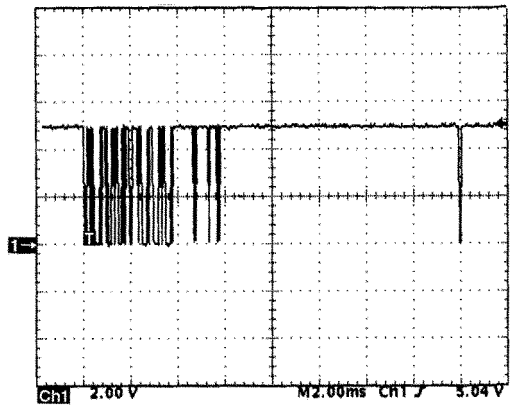

⑩ INT RX, INT TX



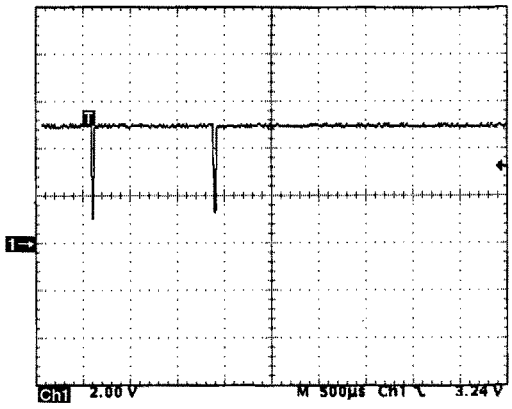

⑪ A0, A1, IOR, IOW



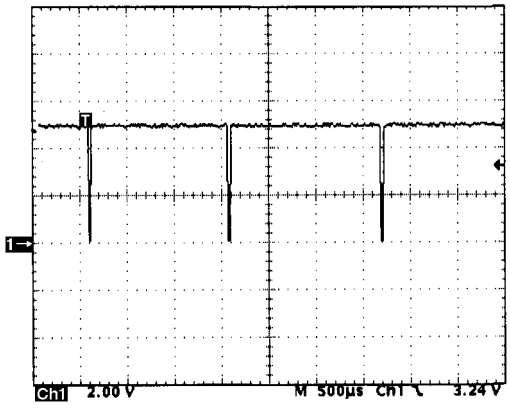

⑫ D0, D1, D2, D3



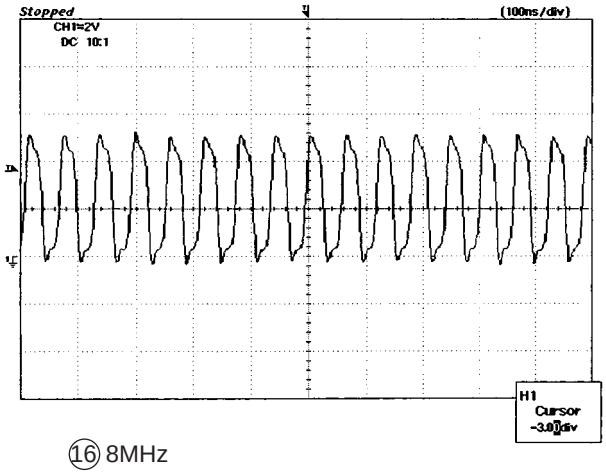

⑬ KEY INPUT (KEY ON)



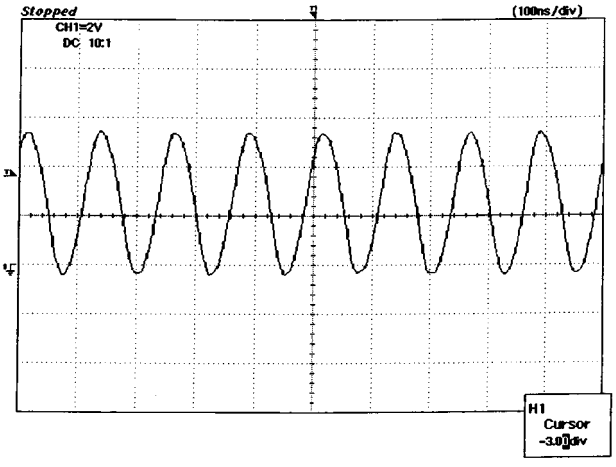

⑭ KEY SIGNAL




⑮ 16.384MHz

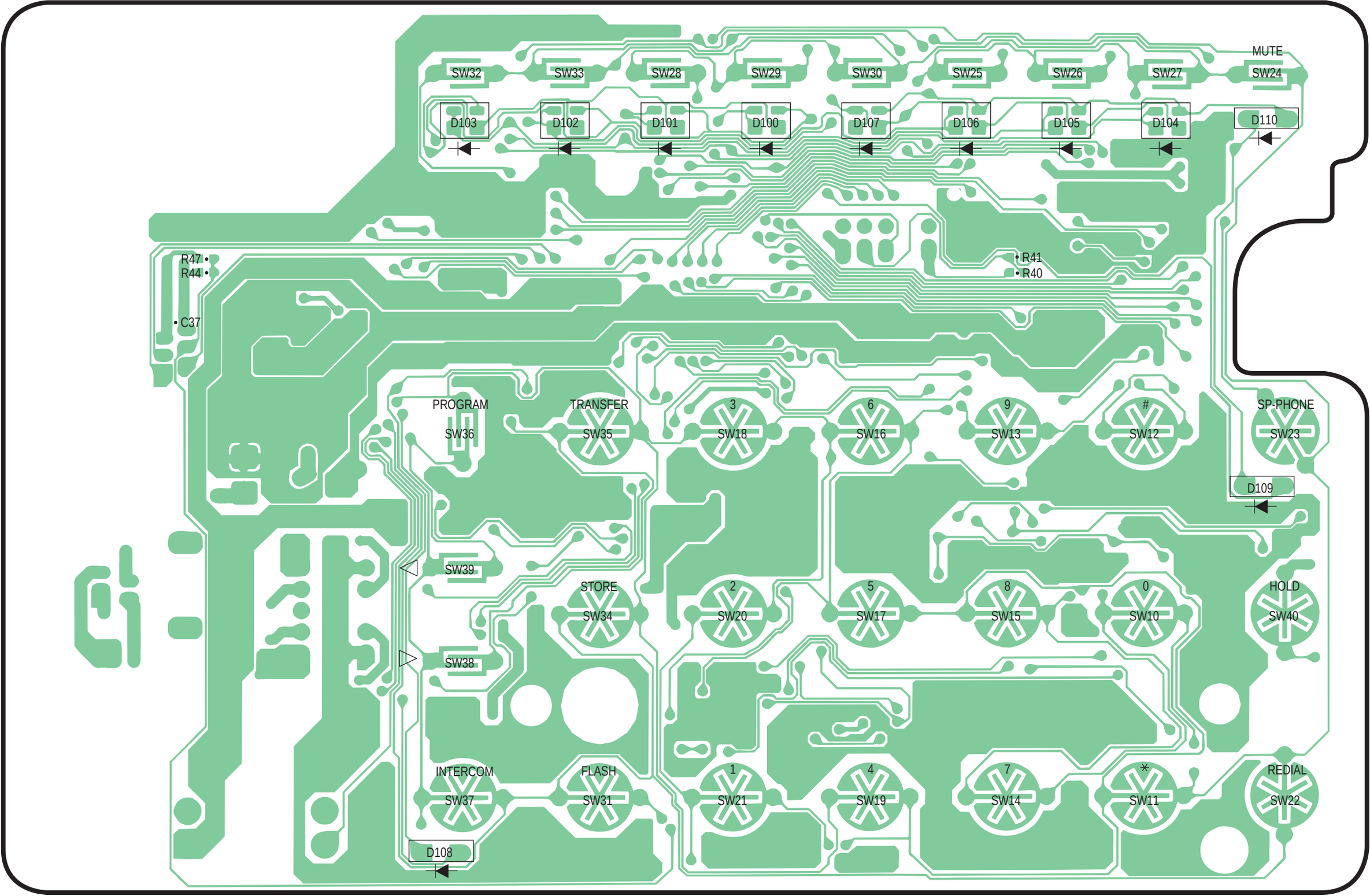


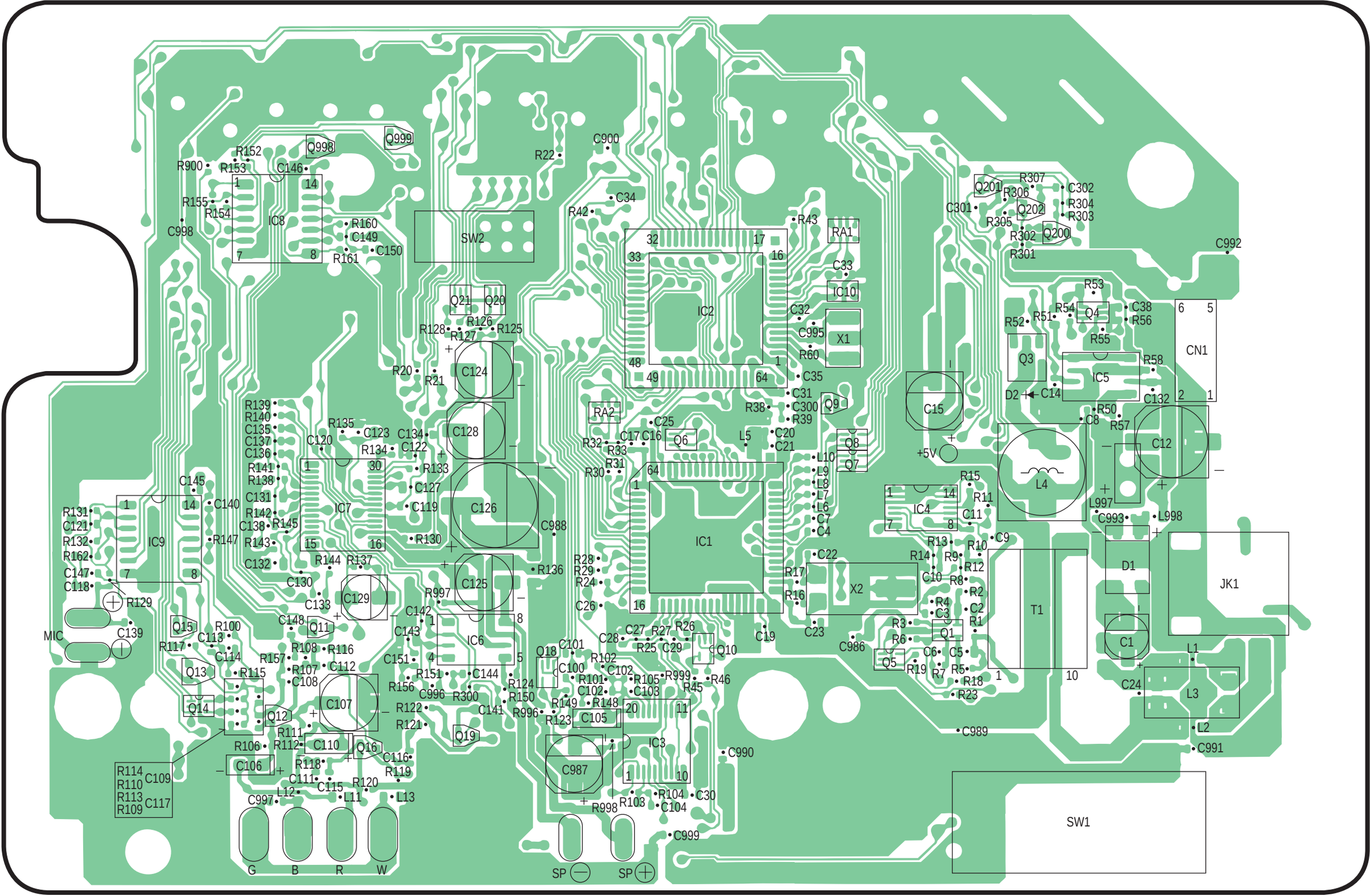

⑯ 8MHz

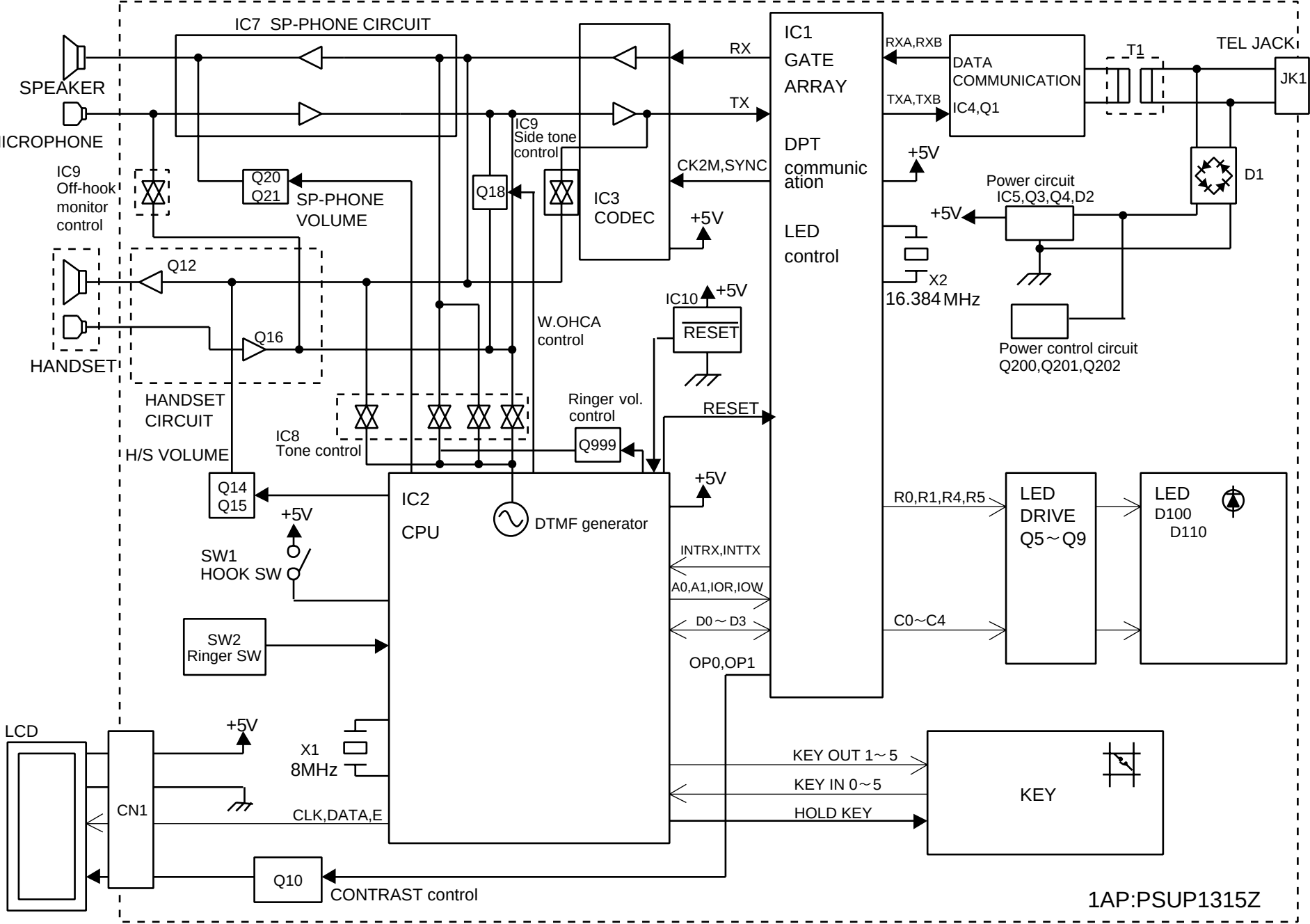


HANDSET RECEPTION
HANDSET TRANSMISSION
HANDSET SIDETONE
SP-PHONE RECEPTION
SP-PHONE TRANSMISSION
OFF-HOOK MONITOR TRANSMISSION

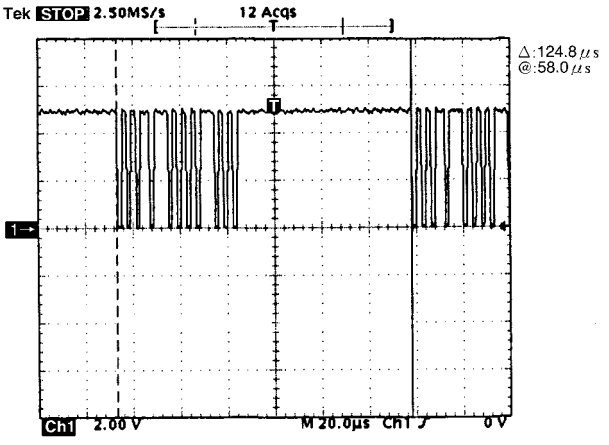
TRANSMISSION LEVEL ADJUSTMENT
DTMF (FOR DIAL)
MUTE
RECEPTION VOLUME CONTROL
MUTE
RINGER VOLUME
SP VOLUME OPERATION CONTROL
LCD MODULE
RESET
HOOK SW
4 BIT MICROCOMPUTER
IC2
LCD CONTRAST CONTROL
POWER CIRCUIT
LED
KEY SWITCH


SW32
SW33
SW28
SW29
SW30
SW25
SW26
SW27
MUTE
SW24
D103
D102
D101
D100
D107
D106
D105
D104
D110
R47
R44
C37
R41
R40
PROGRAM
SW36
TRANSFER
SW35
3
SW18
6
SW16
9
SW13
#
SW12
SP-PHONE
SW23
D109
SW39
STORE
SW34
2
SW20
5
SW17
8
SW15
0
SW10
HOLD
SW40
SW38
INTERCOM
SW37
FLASH
SW31
1
SW21
4
SW19
7
SW14
*
SW11
REDIAL
SW22
D108

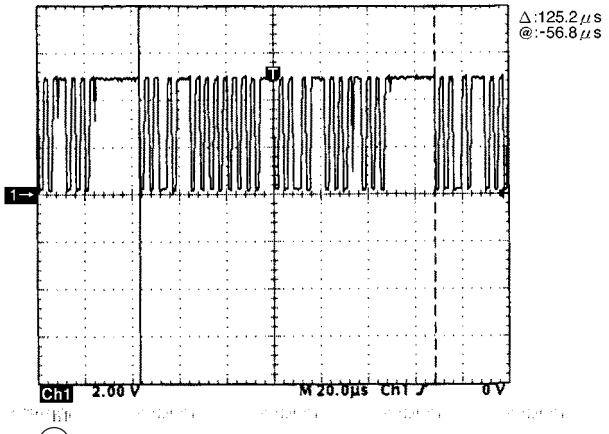

Q998
Q999
R152
R153
C146
R900
R155
R154
C998
IC8
R160
C149
C150
R161
SW2
R22
C900
C34
R42
R43
RA1
C33
IC10
IC2
C32
C995
X1
R60
C35
C31
C300
R39
R38
Q9
RA2
C25
C17
C16
Q6
L5
C20
C21
R32
R33
R31
R30
Q8
Q7
L10
L9
L8
L7
L6
C7
C4
IC1
C22
X2
R17
R16
C23
C19
C26
R28
R29
R24
R27
R26
R25
C29
Q10
C28
C27
C101
Q18
C100
R102
C102
R101
R105
R999
R46
R45
C103
R149
R148
C105
R123
R996
R124
R150
C141
R122
R121
Q19
IC3
C990
C987
R998
R103
R104
C104
C30
C999
SP
SP
Q21
Q20
R128
R126
R127
R125
C124
R20
R21
C128
R139
R140
C135
C137
C136
R141
R138
C131
R142
C138
R145
R143
C132
C130
C133
C129
C148
Q11
C142
C143
C151
R151
C144
R156
C996
R300
R997
C125
C126
C988
R136
R135
C123
C120
R134
C122
R133
C127
C119
R130
R144
R137
IC7
C145
C140
R147
IC9
R131
C121
R132
R162
C147
C118
R129
MIC
C139
Q15
R100
C113
R117
R108
R116
R157
R107
C112
C114
R115
C108
Q13
Q14
Q12
C107
R111
R112
C110
Q16
C116
R106
C106
R118
R119
C111
C115
R120
L12
L11
L13
C997
R114
R110
R113
R109
C109
C117
G
B
R
W
C992
Q201
R307
R306
C302
R304
R303
C301
Q202
R305
R302
Q200
R301
R53
R54
Q4
C38
R56
R52
R51
R55
Q3
IC5
R58
CN1
D2
C14
C15
C8
R50
R57
C132
C12
+5V
L4
L997
C993
L998
D1
JK1
R15
R11
C11
IC4
C9
R13
R14
R9
R10
C10
R8
R12
R2
R4
C3
C2
R3
R6
C986
Q5
Q1
R1
T1
C6
C5
R19
R7
R5
R18
R23
C1
C24
L1
L3
L2
C991
C989
SW1


IC7 SP-PHONE CIRCUIT
SPEAKER
MICROPHONE
IC9
Off-hook
monitor
control
Q20
Q21
SP-PHONE
VOLUME
IC9
Side tone
control
Q18
IC3
CODEC
RX
TX
CK2M,SYNC
+5V
IC1
GATE
ARRAY
DPT
communic
ation
LED
control
RXA,RXB
TXA,TXB
DATA
COMMUNICATION
IC4,Q1
T1
TEL JACK
JK1
D1
Power circuit
IC5,Q3,Q4,D2
+5V
X2
16.384 MHz
Power control circuit
Q200,Q201,Q202
Q12
Q16
HANDSET
HANDSET
CIRCUIT
H/S VOLUME
IC10
+5V
RESET
W.OHCA
control
Ringer vol.
control
Q999
IC8
Tone control
RESET
Q14
Q15
+5V
SW1
HOOK SW
IC2
CPU
DTMF generator
+5V
INTRX,INTTX
A0,A1,IOR,IOW
D0～D3
OP0,OP1
R0,R1,R4,R5
LED
DRIVE
Q5～Q9
LED
D100
D110
C0～C4
SW2
Ringer SW
LCD
+5V
X1
8MHz
CN1
CLK,DATA,E
KEY OUT 1～5
KEY IN 0～5
HOLD KEY
KEY
Q10
CONTRAST control
1AP:PSUP1315Z

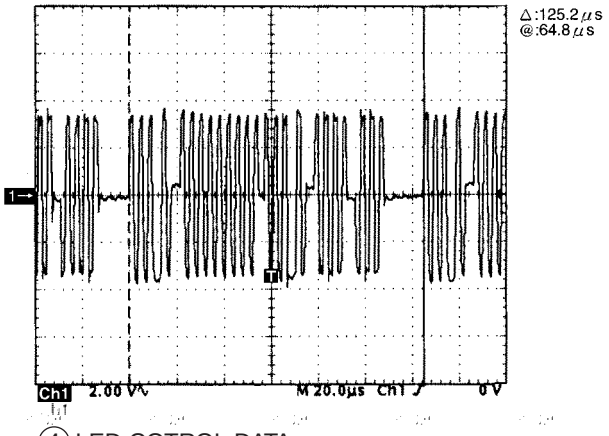
① TX DATA TRANSFER



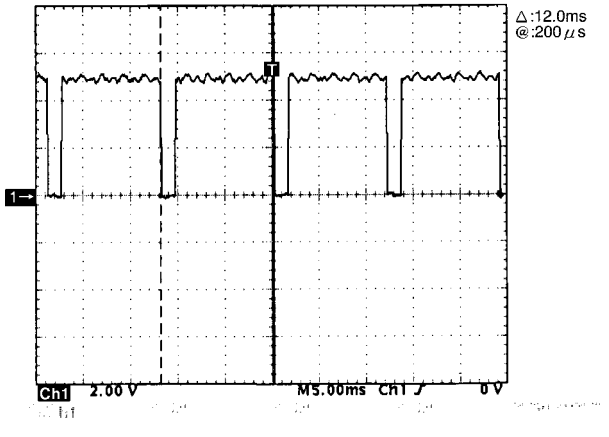

② RX DATA TRANSFER



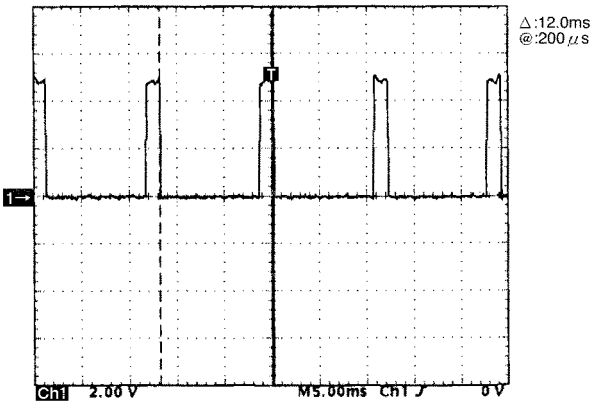

③ H-L DATA



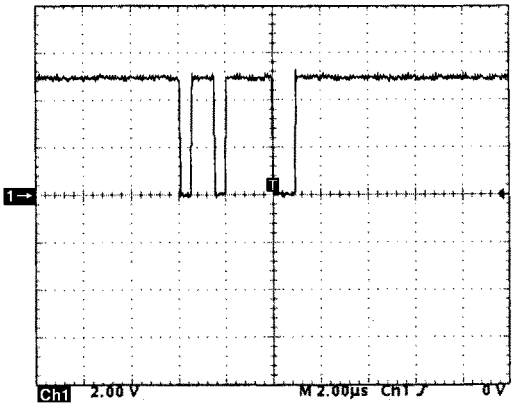

④ LED COTROL DATA



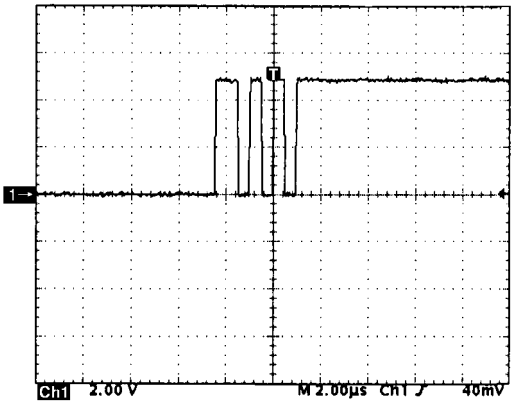

⑤ LED CONTROL DATA




⑥ RX VOICE SERIAL DATA
(VOICE DATA ON)




⑦ TX VOICE SERIAL DATA
(VOICE DATA ON)




⑧ CK2M